

**NOT MEASUREMENT
SENSITIVE**

**MIL-STD-361-1(TM)
15 JULY 1992**

**SUPERSEDING
(See 6.5.)**

MILITARY STANDARD

MANUALS, TECHNICAL:

**WRITING STYLE AND
FORMAT REQUIREMENTS**



AMSC A6750

AREA TMSS

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FOREWORD

1. This military standard is approved for use by the Department of the Army and is available for use by all Departments and Agencies of the Department of Defense (DOD).
2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, USAMC Materiel Readiness Support Activity, ATTN: AMXMD-EP, Lexington, Kentucky 40511-5101, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.
3. This document is one part of an 11-part bookform standard to be used in the preparation and acquisition of technical manuals that are essential to support (operate and maintain) the various types of equipment and weapon systems within the Department of the Army.
4. This document covers the writing style and format requirements for the preparation of technical manuals.
5. Other parts of this multipart standard are:
 - MIL-STD-361-2 - Comprehensibility Requirements.
 - MIL-STD-361-3 - Requirements for Graphics.
 - MIL-STD-361-4 - Quality Assurance Requirements.
 - MIL-STD-361-5 - Requirements for Packaging.
 - MIL-STD-361-6 - Introductory Information with Theory of Operations Requirements.
 - MIL-STD-361-7 - Operator and Preventive Maintenance Instructions.
 - MIL-STD-361-8 - Maintenance Instructions.
 - MIL-STD-361-9 - Troubleshooting Procedures.
 - MIL-STD-361-10 - Lubrication Instructions.
 - MIL-STD-361-11 - Repair Parts and Special Tools List (RPSTL).
6. By incorporating standardized and service-unique technical manual requirements, this document and its dash-numbered companion parts, along with the general acquisition specification MIL-M-63008, Acquisition/Preparation Requirements, support the acquisition of technical manuals.

CONTENTS

<u>PARAGRAPH</u>	<u>PAGE</u>
1. SCOPE	1
1.1 Scope	1
1.2 Purpose	1
1.3 Applicability	1
1.4 Selective application and tailoring	1
2. APPLICABLE DOCUMENTS	2
2.1 Government documents	2
2.1.1 Specifications and standards	2
2.1.2 Other Government documents and publications	3
2.2 Non-Government publications	4
2.3 Order of precedence	4
3. DEFINITIONS	5
3.1 Acronyms used in this standard	5
3.2 Boxhead title	5
3.3 Caution	5
3.4 Change	6
3.5 Contracting activity	6
3.6 Copy freeze date	6
3.7 Footer	6
3.8 Hardness-critical process (HCP)	6
3.9 Header	6
3.10 Icon	6
3.11 Index numbers and letters	6
3.12 Legend	6
3.13 Marginal copy	6
3.14 Note	6
3.15 Revision	6
3.16 Supplement	6
3.17 Technical manuals (TMs)	7
3.18 Warning	7
4. GENERAL REQUIREMENTS	8
4.1 General style and format	8
4.1.1 Advertising	8
4.1.2 Copyright/copyright credit line	8
4.1.3 Source data	8
4.1.4 Use of color	8
4.1.5 Nuclear hardness	8
4.1.5.1 Nuclear hardness symbol	8
4.1.5.2 HCP symbol explanation	9
4.1.6 Electrostatic Discharge Sensitive (ESDS) parts	9
4.1.6.1 ESDS symbol	9
4.1.6.2 ESDS symbol explanation	10
4.1.7 TM Final Reproducible Copy (FRC)	10
4.2 Text format	10
4.2.1 Headers identification	10
4.2.2 Foldout pages and multisheet illustrations	10

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
4.2.2.1	Foldout preparation and multisheet illustration limitations	10
4.2.2.2	Foldout page sizes	10
4.2.2.3	Foldout location	11
4.2.2.4	Foldout numbering and title	11
4.2.3	Blank pages	11
4.2.4	Emergency page markings	11
4.2.5	Figures and tables	12
4.2.5.1	Figure and table numbering and titles	12
4.2.5.2	Illustration legends	12
4.2.5.3	Table and figure locations	13
4.2.5.4	Table format	13
4.2.5.5	Footnotes to tables	13
4.2.6	Illustration identification numbers	14
4.2.7	Major divisions	14
4.2.8	Volumes	14
4.2.9	Chapters	14
4.2.10	Sections	14
4.2.11	Paragraphs	14
4.2.11.1	Paragraph titles	15
4.2.11.2	Primary paragraphs	15
4.2.11.3	Subordinate paragraphs	15
4.2.12	Procedural steps	15
4.2.13	Paragraphs in Joint Service TMs	15
4.2.14	Appendixes	16
4.2.15	Glossaries	16
4.2.16	Index	16
4.2.17	Brief TMs	16
5.	DETAILED REQUIREMENTS	18
5.1	General organization, presentation, and page sizes	18
5.1.1	TM organization	18
5.1.2	Presentation	18
5.1.3	Standard TM page size	18
5.1.4	Other TM page sizes	19
5.1.5	Volume size	19
5.1.6	Margin data	19
5.1.7	Headers and footers	19
5.1.7.1	Headers	19
5.1.7.1.1	Security classification	19
5.1.7.2	Footers	20
5.1.7.2.1	Change designator	20
5.1.7.2.2	Security classification	20
5.1.7.2.3	Footnotes to text	20
5.2	Text preparation details	20
5.2.1	Clarity and language	20
5.2.2	Neutral terms	21
5.2.3	Referencing	21
5.2.4	Equipment names and nomenclature	23
5.2.5	Nomenclature deviation	24
5.3	Readability/level and details of coverage	24

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
5.3.1	Abbreviations and acronyms	24
5.3.2	Metric symbols	24
5.3.3	Military terms	25
5.3.4	Automatic electronic test and checkout terminology	25
5.3.5	Use of "shall," "should," "may," and "will"	25
5.3.6	Tables, charts, and graphs	25
5.3.7	Tabular material	25
5.3.8	Warnings, cautions, and notes	25
5.3.8.1	Hazardous materials warnings and icons	25
5.3.8.1.1	Icons	26
5.3.8.1.2	Hazardous materials warnings format	26
5.3.8.1.3	Use of hazardous materials warnings	26
5.3.9	Health hazards	26
5.3.10	Energy efficiency requirements	26
5.3.11	Environmental protection	27
5.3.12	Proprietary names	27
5.3.13	Front cover	27
5.3.13.1	TM title and number	28
5.3.13.1.1	Type of TM and maintenance levels	28
5.3.13.1.2	Prime title	28
5.3.13.1.3	Subtitle	28
5.3.13.2	Front cover equipment illustration	29
5.3.13.3	Availability statement	29
5.3.13.4	Supersedure notice	29
5.3.13.5	Disclosure notice	29
5.3.13.6	Distribution statement	29
5.3.13.7	Export control notice	30
5.3.13.8	Destruction notice	30
5.3.13.9	Service nomenclature	30
5.3.13.10	TM date	30
5.3.14	For Army COMSEC manuals use	30
5.4	Front and back matter	30
5.4.1	Front matter	30
5.4.1.1	Front cover and title block page	30
5.4.1.1.1	Reporting errors and recommending improvements statement	31
5.4.1.2	Warning summary (including first aid data)	31
5.4.1.3	Change sheet	32
5.4.1.4	Table of Contents	32
5.4.1.5	How To Use This Manual information	33
5.4.1.5.1	International standardization agreements	33
5.4.1.6	Back matter	34
5.4.1.7	Reporting errors and recommending improvements DA Form 2028-2	34
5.4.1.8	Authentication page	34
5.4.1.9	Back cover	34
5.5	Numbering	34
5.5.1	TM number assignment	34
5.5.2	TM number location	34
5.5.3	Pagination	35

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
5.5.3.1	Page numbers	35
5.5.3.2	Front matter	35
5.5.3.3	Brief manual	35
5.5.3.4	Numbering for pages, primary paragraphs, tables, and figures	35
5.5.3.5	Blank page numbers	35
5.5.3.6	Deleted pages	36
5.5.3.7	Appendixes	36
5.5.3.8	Glossary pages	36
5.5.3.9	Index pages	36
5.5.4	Numbering of added material	36
5.5.5	Index number changes	37
5.6	Changes, revisions, and supplements	37
5.6.1	Changes	37
5.6.1.1	Numbering and dating changes	37
5.6.1.2	Deleted paragraphs, steps, figures, items, and tables	37
5.6.1.3	Change designator	38
5.6.1.4	Change symbols for text and tables	38
5.6.1.5	Change sheet	39
5.6.2	Revisions	39
5.6.2.1	Renumbering and removal	39
5.6.3	Supplements	40
5.6.3.1	Classified supplements	40
5.6.3.2	Safety supplement (SS)	40
5.6.3.3	Operational supplements (OS)	41
5.6.3.4	Routine supplements	41
5.6.3.5	Incorporation of supplements into manuals	41
5.7	Security classification	41
5.8	Quality assurance	41
5.9	Packaging and preparation for delivery	41
6.	NOTES	42
6.1	Intended use	42
6.2	Issue of DODISS	42
6.3	Tailoring guidance	42
6.4	Acquisition requirements	42
6.5	Supersession data	43
6.6	Subject term (key word) listing	43

<u>FIGURES</u>		<u>PAGE</u>
1.	Example of use of nuclear hardness-critical process HCP) symbol (reference 4.1.5.1, 4.1.5.1b, 4.1.5.2)	45
2.	Example of use of ESDS symbol (reference 4.1.6.1, 4.1.6.1a, 4.1.6.2)	46
3.	Example of headers, footers, paragraph numbering, and text (sheet 1 of 3) (reference 4.2.1, 4.2.9, 4.2.10, 4.2.11, 5.1.7, 5.1.7.2, 5.5.2)	47

CONTENTS

<u>FIGURES</u>	<u>PAGE</u>
3. Example of headers, footers, paragraph numbering, and text (sheet 2 of 3) (reference 4.2.1, 4.2.9, 4.2.10, 4.2.11, 5.1.7, 5.1.7.2, 5.5.2)	48
3. Example of headers, footers, paragraph numbering, and text (sheet 3 of 3) (reference 4.2.1, 4.2.9, 4.2.10, 4.2.11, 5.1.7, 5.1.7.2, 5.5.2)	49
4. Example of foldout page (reference 4.2.2.4)	50
5. Example of emergency page markings (reference 4.2.4)	51
6. Example of figure with legend (reference 4.2.5.1b, 4.2.5.2)	52
7. Example of table format - titles, numbering, continued tables, footnotes (reference 4.2.5.1c, 4.2.5.4, 4.2.5.5b, 4.2.5.5d)	53
8. Example of front cover - subtitle, volume numbers and titles, availability statement (reference 4.2.8, 5.3.13.1.3, 5.3.13.3)	54
9. Example of index (reference 4.2.16)	55
10. Example of title block page and text for a brief TM (reference 4.2.17b, 5.5.3.3)	56
11. Examples of warnings, cautions, and notes (reference 5.3.8)	57
12. Example of warning summary (with hazardous materials warnings) (sheet 1 of 3) (reference 5.3.8.1.1, 5.3.8.1.2, 5.4.1.2c)	58
12. Example of warning summary (with hazardous materials warnings) (sheet 2 of 3) (reference 5.3.8.1.1, 5.3.8.1.2, 5.4.1.2c)	59
12. Example of warning summary (with hazardous materials warnings) (sheet 3 of 3) (reference 5.3.8.1.1, 5.3.8.1.2, 5.4.1.2c)	60
13. Example of hazardous materials warnings used in text (reference 5.3.8.1.2b, 5.3.8.1.3)	61
14. Example of front cover format (including security classification) (reference 5.3.13, 5.3.13.1, 5.3.13.5, 5.7)	62
15. Example of unclassified front cover (reference 5.3.13.1, 5.3.13.1.1, 5.3.13.1.2, 5.3.13.2, 5.3.13.4, 5.3.13.6 - 5.3.13.10, 5.5.2)	63
16. Example of title block page, Reporting Errors and Recommending Improvements statement (reference 5.4.1.1, 5.4.1.1.1)	64
17. Example of general safety precautions in a warning summary (reference 5.4.1.2c)	65
18. Example of general subject data warnings in a warning summary (reference 5.4.1.2c)	66
19. Example of Table of Contents format (reference 5.4.1.4)	67
20. Example of filled in sample DA Form 2028-2 (reference 5.4.1.7)	68
21. Example of change sheet (reference 5.6.1.1, 5.6.1.5)	69

CONTENTS

<u>FIGURES</u>	<u>PAGE</u>
22. Example of requirements for change pages (reference 5.6.1.3, 5.6.1.4)	70
23. Example of safety supplement title page (reference 5.6.3, 5.6.3.2b)	71
24. Example of operational supplement title page (reference 5.6.3, 5.6.3.3)	72
A-1. Multiple icon usage and presentation format (reference Appendix A, 40.1, 40.2a)	80
 <u>TABLES</u>	
I. Foldout page sizes (in inches)	11
II. Standard TM page sizes (in inches)	18
III. Other authorized manual page sizes (in inches)	19
 <u>APPENDIXES</u>	
A. SINGLE HAZARD ICONS PRESENTATION	73
 <u>INDEX</u>	 81

1. SCOPE

1.1 Scope. This document establishes the style and format for preparation of technical manuals (TMs), revisions, supplements, and changes.

1.2 Purpose. This general style and format document supplements the various content requirements in the other parts to this 11-part standard for specific types of technical manuals and related publications and does not alone deliver any technical data. (NOTE: The figures used in this document are examples only. The text of this document takes precedence over the figures.)

1.3 Applicability. The applicability of the requirements contained in this document is governed by the equipment, systems, or weapon systems for which the technical manuals are being developed. This document is applicable for use by of the Department of the Army.

1.4 Selective application and tailoring. This document contains some requirements that may not be applicable to the preparation of all technical manuals. Selective application and tailoring of requirements contained in this document are the responsibility of the contracting activity and shall be accomplished through the use of MIL-M-63008. The applicability of some requirements is also designated by one of the following statements:

- unless requirement is specifically excluded by the contracting activity; or
- as/when specified by the contracting activity.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation. (See 6.2.)

SPECIFICATIONS

MILITARY

- MIL-P-38790 - Printing Production of Technical Manuals: General Requirements for.
- MIL-M-63008 - Manuals, Technical: Acquisition/Preparation Requirements.

STANDARDS

MILITARY

- DOD-STD-1686 - Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies, and Equipment (Excluding Electrically Initiated Explosive Devices).
- MIL-STD-12 - Abbreviations for Use on Drawings, and in Specifications, Standards and Technical Documents.
- MIL-STD-361-2 - Manuals, Technical: Comprehensibility Requirements.
- MIL-STD-361-3 - Manuals, Technical: Requirements for Graphics.
- MIL-STD-361-4 - Manuals, Technical: Quality Assurance Requirements.
- MIL-STD-361-5 - Manuals, Technical: Requirements for Packaging.
- MIL-STD-361-6 - Manuals, Technical: Introductory Information with Theory of Operations Requirements.
- MIL-STD-361-8 - Manuals, Technical: Maintenance Instructions.

- MIL-STD-361-11 - Manuals, Technical: Repair Parts and Special Tools List (RPSTL).
- MIL-STD-1388-1 - Logistics Support Analysis.
- MIL-STD-1388-2 - DOD Requirements for a Logistic Support Analysis Record (LSAR).
- MIL-STD-1309 - Definition of Terms for Automatic Electronic Test and Checkout.
- MIL-STD-1806 - Marking Technical Data Prepared By or For the Department of Defense.

(Unless otherwise indicated, copies of federal and military specifications and standards are available from Standardization Documents Order Desk, Bldg 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5904.)

2.1.2 Other Government documents and publications. The following other Government documents and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

- DOD 5200.1-R - Information Security Program Regulations.
- DOD 5220.22-M - Industrial Security Manual for Safeguarding Classified Information.
- DOD 5230.24 - Distribution Statements on Technical Documents.
- Executive Order 12191 - Occupational Safety and Health Act for Federal Employees.
- Joint Pub 1-02 - Department of Defense Dictionary of Military and Associated Terms.
- Library of Congress Catalog No. Z253.U58 - U.S. Government Printing Office (GPO) Style Manual.
- Public Law 91-596 - Occupational Safety and Health Act (OSHA)

(Copies of DOD 5200.1-R are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. Copies of DOD 5220.22-M, OSHA Public Law 91-596, Executive Order 12191, the GPO Style Manual, and Joint Pub 1-02 are available from the U.S. Government Printing Office, ATTN: Superintendent of Documents,

Washington, DC 20402-0001. Copies of DOD 5230.24 are available from Standardization Documents Order Desk, Bldg 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5904.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents that are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are issues of the documents cited in the solicitation. (See 6.2.)

AMERICAN SOCIETY FOR TESTING MATERIALS

ASTM E380-86 - Standard for Metric Practice.

(Application for copies should be addressed to the American Society for Testing Materials, 1916 Race Street, Philadelphia, PA 19103, or from the Standardization Documents Order Desk, Bldg 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

IEEE 945-84 - IEEE Recommended Practice for Preferred Metric Units for Use in Electrical and Electronics Science and Technology.

(Application for copies should be addressed to the Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, New York, NJ 10017 or from the Standardization Documents Order Desk, Bldg 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document ("This document" includes all volumes of MIL-STD-361 series.) and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. DEFINITIONS

3.1 Acronyms used in this standard. The acronyms used in this standard are defined as follows:

- a. AMDF - Army Master Data File.
- b. DMWR - Depot Maintenance Work Requirement.
- c. DOD - Department of Defense.
- d. DODISS - Department of Defense Index of Specifications and Standards.
- e. ESDS - Electrostatic Discharge Sensitive.
- f. FRC - Final Reproducible Copy.
- g. GPO - Government Printing Office.
- h. HCP - Hardness-Critical Procedures/Processes.
- i. IEEE - Institute of Electrical and Electronics Engineers, Inc.
- j. EIC - End Item Code.
- k. LSAR - Logistic Support Analysis Record.
- l. MAC - Maintenance Allocation Chart.
- m. NSN - National Stock Number.
- n. OS - Operational Supplement.
- o. OSHA - Occupational Safety and Health Act.
- p. RGL - Reading Grade Level.
- q. RPSTL - Repair Parts and Special Tools List.
- r. SS - Safety Supplement.
- s. TM - Technical Manual.

3.2 Boxhead title. Titles that are enclosed by ruling lines at the top of a column on tables and charts.

3.3 Caution. A statement or some other notification about an operating or maintenance procedure, practice, or, condition that, if not strictly observed, could result in damage to, or destruction of, equipment or loss of mission effectiveness.

3.4 Change. A change consists of replacement pages to the basic manual. These pages contain information that corrects, improves, or clarifies the basic manual.

3.5 Contracting activity. The Department of Defense (DOD) component, activity, or organization of a using military service, or that organization delegated by a using service, that is responsible for the selection and determination of requirements for TMs.

3.6 Copy freeze date. The copy freeze date is a date set by the contracting activity after which no additions, deletions, or changes will be accepted to the publication material.

3.7 Footer. One or more lines of standard text that appear at the bottom of each page (also called feet and running feet).

3.8 Hardness-critical process (HCP). A process affecting a mission critical item which could degrade system survivability in a nuclear, biological, or chemical hostile environment if hardness were not considered. Nuclear HCPs are processes, finishes, specifications, manufacturing techniques, and/or procedures which are hardness critical, and which, if changed, could degrade nuclear hardness.

3.9 Header. One or more lines of standard text that appear at the top of each page (also called heads and running heads).

3.10 Icon. Pictorial representation; visual image to give immediate recognition of a hazard or to provide essential information.

3.11 Index numbers and letters. A number or letter (on a figure or an illustration) usually attached to a line or an arrow which points to an object on the illustration. This number or letter corresponds to the same number or letter in a legend or text which defines or identifies the object in the illustration.

3.12 Legend. A tabular listing and explanation of the numbers or symbols on a figure or an illustration.

3.13 Marginal copy. Copy (generally headers and footers) placed outside that portion of the page used for either narrative text, full page tabular data, or full page illustrations, but within the printing area dimensions of the page.

3.14 Note. A statement or some other notification that adds, emphasizes, or clarifies essential information of special importance or interest.

3.15 Revision. A revision is a second or subsequent edition of a manual that supersedes the preceding edition with all its changes.

3.16 Supplement. A supplement is a subsidiary document that complements information in a manual.

3.17 Technical manuals (TMs). Manuals that contain instructions for the installation, operation, maintenance, and support of weapon systems, weapon system components, and support equipment. TM information may be presented, according to prior agreement between the contractor and the Government, in any form or characteristic, including hard printed copy, audio and visual displays, electronic embedded media, disks, other electronic devices, or other media. They normally include operational and maintenance instructions, parts lists, and related technical information or procedures exclusive of administrative procedures.

3.18 Warning. A statement or some other notification about an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in long term health hazard, injury to, or death of personnel performing the task prescribed in the TM.

4. GENERAL REQUIREMENTS

4.1 General style and format. The general style and format of a technical manual (TM) shall be in accordance with the requirements contained in this document. Optional requirements found in this document are also listed in MIL-M-63008.

4.1.1 Advertising. TMs shall contain no advertising.

4.1.2 Copyright/copyright credit line. TMs shall not contain copyrighted material except as specified in the Federal Acquisition Regulations and Defense Federal Acquisition Regulation Supplement. When copyrighted material is to be included in a TM, the preparer shall obtain prior written permission from the copyright owner or authorized agent for its use. The signed, written permission shall be delivered with the final reproducible copy when it is delivered. The written permission shall contain a statement declaring whether or not a copyright credit line is required.

4.1.3 Source data. The primary source data for TMs shall be engineering drawings and, if a contract requirement, the Logistics Support Analysis and Logistics Support Analysis Record (LSAR) in accordance with MIL-STD-1388-1 and MIL-STD-1388-2. Sound engineering principles and techniques, available engineering analyses, service experience, performance data on the item and on similar items, and all other reliability and maintainability data available shall be used in the preparation of specific instructions.

4.1.4 Use of color. Color of ink specified to be used in printing shall be limited to black and shades of black (one color), unless prior approval is provided by the contracting activity from the U.S. Army Publications and Printing Command. Written approval, designating additional color(s) to be used if deemed necessary, shall be provided by the contracting activity. (See also MIL-STD-361-3.)

4.1.5 Nuclear hardness. If equipment covered in the TM has nuclear survivability requirements (for example, overpressure and burst, thermal radiation, electromagnetic pulse, or transient radiation effects on electronics), applicable cautions shall be incorporated into the text to ensure that hardness of the equipment is not degraded during operation or maintenance and all hardness critical processes and steps shall be marked in accordance with 4.1.5.1 below.

4.1.5.1 Nuclear hardness symbol. All hardness-critical processes (HCP) shall be marked with HCP enclosed in a box as shown in figure 1 (or as specified by the contracting activity, the symbol **HCP** may be used instead). The symbol shall be prepared in the same style and size as the applicable paragraph or subordinate paragraph titles. The symbol shall not be included in the paragraph title in the Table of Contents. Use of the symbol is as follows:

- a. When the entire paragraph and all subordinate paragraphs and steps relate to establishing nuclear hardness, the symbol shall be inserted immediately following the paragraph number.
- b. When all subordinate paragraphs and steps do not contribute to establishing nuclear hardness, only those which do contribute will be annotated with the symbol. (See figure 1.)
- c. Maintenance actions which could degrade hardness, but which are not directly involved in establishing nuclear hardness, will not be annotated with the symbol, but will be preceded by a caution.

4.1.5.2 HCP symbol explanation. An example and explanation of the HCP symbol shall be included in the warning summary. Other pertinent information shall be included as necessary to emphasize the uniqueness of hardness features. This shall include an explanation that all paragraphs, procedures, and steps identified by the symbol must be followed as written to ensure nuclear hardness is not degraded. This explanation shall be preceded by a CAUTION header. (See figure 1.)

4.1.6 Electrostatic Discharge Sensitive (ESDS) parts. If equipment to be handled or maintained contains ESDS parts, components, or circuits, applicable cautions and symbols shall be incorporated into TMs to ensure ESDS parts are not damaged or degraded during handling or maintenance.

4.1.6.1 ESDS symbol. All paragraphs addressing handling or maintenance which could damage ESDS parts shall be identified by the ESDS symbol as shown in figure 2 (or, as specified by the contracting activity, the symbol **ESD** may be used instead). The symbol **ESD** shall be prepared in the same style and size as the applicable paragraph or subordinate paragraph titles. The symbol shall not be included in the paragraph title in the Table of Contents. Use of the symbol is as follows:

- a. When the entire paragraph and all subordinate paragraphs and steps describe handling or maintenance which could damage ESDS parts, the ESDS symbol shall be inserted immediately following the paragraph number. (See figure 2.)
- b. When all subordinate paragraphs and steps are not related to handling or maintenance which could damage ESDS parts, only those related will be annotated.
- c. Maintenance actions which could damage ESDS parts, but which are not directly related to handling or maintenance of ESDS parts, will not be annotated with the ESDS symbol, but will be preceded by a caution.
- d. Figures, drawings, and schematics shall be marked with the ESDS symbol in accordance with DOD-STD-1686.

4.1.6.2 ESDS symbol explanation. An example of the ESDS symbol and its explanation shall be included in the warning summary. Other pertinent information shall be included as necessary to emphasize the uniqueness of ESDS parts. This shall include an explanation that the ESDS symbol requires that all ESDS parts be handled according to ESDS device handling procedures in DOD-STD-1686. This explanation shall be preceded by a CAUTION heading. (For an example of ESDS explanation, illustration, and use, see figure 2.)

4.1.7 TM Final Reproducible Copy (FRC). FRC shall include all text pages (including tabular data and emergency page markings when applicable) and artwork suitable for reproduction. FRC shall be in accordance with MIL-P-38790 and supplied in final size. Type styles and sizes shall be comparable to those shown in MIL-STD-361-2. The FRC shall be of a quality which will permit reduction to 16mm or 35mm negatives (multiframe negatives for foldouts) suitable for subsequent enlargement to full size photolithographic negatives which may be used to produce offset printing plates. The FRC shall have the following minimum acceptable features:

- a. Lines of type shall be double columns of equal size for 8-1/2 x 11-inch or larger TMs and page wide (copy area) format for TMs smaller than 8-1/2 x 11 inches.
- b. Single spacing.
- c. Justified right margins.
- d. Headings prepared on same composing equipment as the text.

4.2 Text format.

4.2.1 Headers identification. Numbers and titles for major portions of a TM (front matter, volumes, chapters, appendixes, glossaries, alphabetical indexes, etc.) shall be in bold face, capital letters centered at the top of the first page of text for each. Each shall begin on a right-hand page. The Section I header shall be centered immediately below the chapter header; subsequent section headers shall be centered on the page above the applicable text and may begin on left- or right-hand pages. (See figure 3.)

4.2.2 Foldout pages and multisheet illustrations.

4.2.2.1 Foldout preparation and multisheet illustration limitations. When an illustration (for clarity) must be larger than a single TM page, foldouts or multisheet illustrations shall be prepared as specified by the contracting activity. Multisheet illustrations are the preferred format. For multisheet diagrams and schematics, the continued portions shall align. Foldout-foldup pages are not permitted.

4.2.2.2 Foldout page sizes. When required (See 4.2.2.1.), foldout pages shall be prepared for the 8-1/2 by 11 and 11 by 8-

1/2 inch manuals. Foldout pages shall not be used in 4 by 5-1/2, 5-1/2 by 4, 6-1/2 by 9-1/2, 9-1/2 by 6-1/2, or 17 by 11 inch manuals. All foldout pages shall be prepared for printing on one side only and full aprons shall be used. Aprons shall be blank unless used for notes. Foldout pages shall not be spliced. Manual trim sizes, foldout maximum page trim sizes, and foldout maximum printing area for foldout pages shall be as shown in Table I.

TABLE I. Foldout page sizes (in inches).

Manual Trim Size	Foldout Maximum Page Trim Size (Including Apron)	Foldout Maximum Printing Area
8-1/2 x 11	45 x 11	*36 x 10
11 x 8-1/2	11 x 45	*10 x 36

*NOTE: Minimum margins: 1/2 inch top and bottom, 1/4 inch side opposite binding edge.

4.2.2.3 Foldout location. Foldout pages shall fall at the end of the TM or at the end of each applicable volume in a multivolume manual. Foldouts shall follow the last chapter, appendix, or index, whichever forms the last portion.

4.2.2.4 Foldout numbering and title. The figure numbers for foldouts shall be FO-1, FO-2, etc., and shall be placed preceding the figure title under the illustration. Foldout pages shall be assigned page numbers FP-1/FP-2 blank, FP-3/FP-4 blank, etc. When a foldout consists of several sheets, the sheets shall be numbered in consecutive order following the figure title as FO-1 (Sheet 1 of (total number of sheets)), FO-1 (Sheet 2 of (total number of sheets)), etc. (Refer to MIL-P-38790 for further information.) Each sheet shall be assigned a page number. The page numbers shall be placed (lower outer corner) so that the number will be visible when the printed page is folded. The figure number and title for a foldout page shall be placed above the page number, end flush right, and be visible when the printed page is folded. (See figure 4.)

4.2.3 Blank pages. Blank pages should be avoided whenever possible. When used, blank pages normally require no copy. However, if the reverse side of a blank page contains classified material, security markings shall be in accordance with DOD 5220.22-M.

4.2.4 Emergency page markings. When specified by the contracting activity, emergency pages shall be prepared. Pages containing emergency information shall have a broken black border placed on the three unbound edges. The border, the black marking, and the space between markings shall each be 3/16 inch wide. The angle of markings shall be 45 degrees. (See figure 5.)

4.2.5 Figures and tables.

4.2.5.1 Figure and table numbering and titles.

- a. Figures which are referenced in text (as opposed to untitled illustrations in step-by-step procedures) and tables shall be numbered consecutively within each chapter in the order of their reference with two-part Arabic numerals separated by a hyphen. If only one figure or table is referenced in the document, it shall be numbered. The first part shall be the chapter number and the second part the order within the chapter. (For example, figure 2-17 shall be the 17th figure in Chapter 2.)
- b. Figures and tables shall be titled. The word Figure or Table shall be in upper and lowercase, followed by a period, two spaces, and the title. The first letter of the first and each major word of the title shall be capitalized, and the last word shall be followed by a period. Figure or table titles shall not be underlined. Figure titles shall be centered below the graphic (except for foldouts) and shall begin on the same line with the figure number. (See figure 6.) Table titles shall be centered above the table and shall begin on the same line with the table number.
- c. If the title of the figure or table is too long to fit on one line, the second line shall be aligned with the first letter of the title. When a table is continued on a following page, the number and title shall be repeated above the boxhead titles and columns followed by a dash and Continued. (See figure 7.)
- d. Tables and illustrations applicable to one Service in a joint service TM shall be identified.

Example:

Table 2-3. (Army Only) Fuel Indicator Correction Factors.

Figure 2-3. (Army Only) Fuel Indicator.

4.2.5.2 Illustration legends. When necessary for clarity, legends shall be used to identify index numbers on illustrations. Legends shall be placed on the page with the illustration, space permitting, or on a facing page. The header for the legend shall be in upper and lowercase and underlined in the following format: Legend for Figure x-x. If the legend is continued, the header shall be repeated, followed by a dash and the word "Continued." The list shall be placed one line space below the heading, shall be single-spaced, and shall be indented two spaces. The list shall consist of the index numbers corresponding to the index numbers on the illustration, followed by a period, two spaces, and the name/description of the item. Only that information which is necessary to clearly identify the items shall be included in the legend. (See figure 6.) Where methods such as

tabular presentation (i.e, Repair Parts and Special Tools List) are used, no legends are required.

4.2.5.3 Table and figure locations. Tables and figures with titles shall be inserted in the TM on the same page or as soon after the first reference in text as possible. Full-page tables or figures, placed sideways on a page, shall be turned 90 degrees counterclockwise. The number and title for a turned table or figure shall be placed at the bottom of the page with the TM in its normal position.

4.2.5.4 Table format. Tables shall be vertically ruled as required for clarity. A horizontal rule shall be placed at the beginning (head) and at the end (foot) of a table or chart and following column heads (boxhead titles). The closing rule shall be omitted at the foot of a continued table or chart; the opening rule shall be continued at the head of the continued portion. Boxhead column titles in all capital letters shall be placed at the beginning of the table. Tables shall be so designed that related entries in different columns are aligned. Carryover lines shall be indented two spaces unless adequately spaced between entries. Procedural steps in a table shall have substeps indented two spaces. Each level of substep shall be indented an additional two spaces. When a table is continued, boxhead titles shall be repeated unless the page is a foot page of a head to foot tabular arrangement. When a table entry is continued, the entry or its identifying number or letter from the first column shall be repeated in the first column (followed by a dash and the word "Continued" or "Cont," as space allows). (See figure 7.)

4.2.5.5 Footnotes to tables.

- a. In tables, footnote references shall be numbered separately for each table and separate from the text. Consecutive superior numbers beginning with 1 is the preferred numbering system. However, superior lowercase letters, asterisks, or other designations may be used where numbers would cause confusion.
- b. Footnotes to tables shall be placed below the closing line of the applicable table unless the table is continued. (See figure 7.) If a table is continued onto other pages, all footnotes shall be placed at the bottom of the page on which they are referenced or at the end of the table and the directory note "See footnotes at end of table." shall be placed at the bottom of pages containing footnote references.
- c. For footnotes coming before the end of the table, and for a directory note, a one-inch horizontal rule shall be placed flush left two line spaces below the table and the footnote or directory note placed under the rule. Footnotes at the end of the table shall be started on the second line below the closing rule.

- d. All directory notes and footnotes shall be indented five spaces from the left margin of the table and carryover lines shall return to the left margin of the table. Footnote numbers or other designators shall be separated from the footnote text by two spaces. (See figure 7.)

4.2.6 Illustration identification numbers. A contractor's identification number may be used. When used, such numbers shall be in approximately 4- to 6-point type and placed in the lower right-hand corner of the illustration sufficiently removed to avoid being confused as part of the illustration or margin data.

4.2.7 Major divisions. The hierarchical breakdown of a TM shall be as follows: volumes, chapters, sections, and paragraphs, as appropriate. There should normally be at least two of each division used (for example, where there is a Volume 1, there should be a Volume 2; where there is a Chapter 1, there should be a Chapter 2, etc.). All volumes, chapters, sections, and primary and first subordinate paragraphs shall be titled.

4.2.8 Volumes. When volume numbering is required (See 5.1.5.), consecutive Arabic numerals shall be added to the TM identification number (for example, TM 9-1000-200-14-1, TM 9-1000-200-14-2, etc.). Separate volumes shall not be used to distinguish between models of equipment (for example, -10 for basic model, -10-1 for model A, -10-2 for model B, etc.). Volumes shall be separated by complete chapters, where possible. Two or more volumes shall be identified sequentially by volume numbers and subtitles indicative of volume content. The volume number and subtitle shall be placed on the cover and title block page below the TM title. (See figure 8.)

4.2.9 Chapters. Arabic numerals shall be used to number chapters consecutively throughout all volumes of the TM. The format for the second and all following chapter headers shall be the same as shown in figure 3.

4.2.10 Sections. Roman numerals followed by a period and two spaces shall be used to number sections consecutively within each chapter. (See figure 3.)

4.2.11 Paragraphs. Decimal paragraphing shall be used. Text shall be divided into primary paragraphs and subordinate paragraphs. Subordinate paragraphs shall be further identified as first subordinate, second subordinate, and third subordinate. Paragraphs may also be divided into procedural steps. Procedural steps may be further divided if necessary. (See also MIL-STD-361-8 for further detail on maintenance paragraphs, which require Initial Setup information.) Paragraphs shall be numbered consecutively within the chapter. All paragraph numbers shall be preceded by the chapter number and a period. Decimal paragraph numbering and indention as shown on figure 3 shall be used. Text shall be double columns of equal size for 8-1/2 x 11-inch or larger TMs or page wide (copy area) format for TMs smaller than 8-1/2 x 11 inches. Text shall return to the margin for all except procedural steps which shall be blocked. (See figure 3.)

4.2.11.1 Paragraph titles. All primary and first subordinate paragraphs shall have a title. Titles for other subordinate paragraphs are optional; however, where one subordinate paragraph is titled, all subordinate paragraphs at that particular level shall be titled.

4.2.11.2 Primary paragraphs. Primary paragraphs ordinarily divide text within chapters or sections into two or more portions. There shall be at least one primary paragraph in each chapter or section. The number shall be bold and begin at the left margin. The title shall be in bold face type, all capital letters, underlined, and followed by a period. Primary paragraph titles stand alone (are not run in with text). Text shall begin flush left one line space below the title.

4.2.11.3 Subordinate paragraphs. Subordinate paragraphs shall be numbered in bold type and follow the order as shown in 4.2.11. All subordinate paragraphs shall begin at the left margin two line spaces below the preceding paragraph. All first subordinate paragraphs shall be titled. Second and subsequent subordinate paragraphs may be titled or untitled. The first letter of the first word of the title and of each principal word shall be capitalized, and the title shall be underlined, bold, and followed by a period and two spaces. The text shall begin on the same line as the title following the period (if using a title) and two spaces (unless the following text is procedural steps, see 4.2.12). Carryover lines shall return to the left margin. Unless requirement is specifically excluded by the contracting activity, breakdowns beyond the third subordinate paragraph shall not be used.

4.2.12 Procedural steps. Procedural steps shall be used to provide step-by-step instructions, such as disassembly, assembly, and alignment procedures. Procedural steps shall be in a logical sequence and reflect the sequence in which the tasks are actually performed. When required, steps shall be further divided into substeps. Procedural steps shall not be titled. Procedural steps and checklist items shall be identified consecutively by lowercase letters and Arabic numerals in accordance with 4.2.11. Procedural steps shall begin two line spaces below the preceding text and indented two spaces from the left margin. Substeps shall begin two spaces below, and indented under the first letter of, the preceding step. The text shall begin on the same line as the step number and be separated by two spaces. Carryover lines shall start under the first letter of the preceding line (blocked format). When procedures are continued on subsequent pages, the primary paragraph number and title shall be continued at the top of those pages (for example, 4.1 FUEL PUMP DISASSEMBLY. - Continued).

4.2.13 Paragraphs in Joint Service TMs. When TMs are acquired and specified by the Army for joint use with another or other Services, paragraphs in joint publications which do not apply to all Services concerned shall be marked to indicate the Services to which they apply (for example, 4.4 (ARMY ONLY) THE LANDING GEAR.).

4.2.14 Appendixes. Appendixes shall be added to a TM for purposes of illustration, application, and general information relating to the manual. An appendix shall be within the scope of the manual and shall not be inconsistent with the manual itself. Appendix identification shall be alphabetical throughout the document in the order of reference in the text (for example, Appendix A, Appendix B, etc.). Appendixes shall begin on a right-hand page. Appendixes shall immediately follow the last chapter of the TM.

4.2.15 Glossaries. Glossaries shall be used in TMs only when the terms are uncommon and are not adequately defined in the text or in the Army, DOD, or standard dictionary. If a glossary is required, it shall begin on a right-hand page and immediately precede the index, if any. Glossary headers shall consist of the word **GLOSSARY** in all bold capital letters and shall be centered at the top of the page. Page numbers for a glossary shall be consecutively numbered Glossary-1, Glossary-2, etc.

4.2.16 Index. An alphabetical index shall be prepared when the number of titled paragraphs in a TM exceeds 100, or as specified by the contracting activity, regardless of the number of paragraphs. It shall include entries for every subject which may be useful to the users. "See" and "See also" references may be included to guide the user to other entries. All applicable paragraph numbers and/or page references for each item shall be indicated. The index shall be constructed to enable users to easily locate information in the text. The index header shall consist of the word **INDEX** in all bold capital letters and shall be centered. Page numbers for alphabetical indexes shall be consecutively numbered Index-1, Index-2, etc. Indexes shall begin on a right-hand page. The index shall be located at the end of the TM but shall precede any foldout pages. (See figure 9.)

4.2.17 Brief TMs. TMs of eight pages or less shall be prepared in accordance with the applicable requirements stated elsewhere in this standard with the following exceptions:

- a. Brief TMs shall not be required to have front matter (except title block page).
- b. The first page shall consist of a title block followed by text. (See figure 10.)
- c. Chapters or sections shall begin on both left-hand or right-hand pages; there shall be no blank pages.
- d. Brief TMs shall contain more than one chapter or section on a page where possible.
- e. Pages, paragraphs, figures, and tables shall be numbered consecutively throughout the TM with single Arabic numerals, disregarding chapter and section numbers.

- f. Such TMs shall always be revised and never have changes issued.**
- g. Brief TMs shall be bound.**

5. DETAILED REQUIREMENTS

5.1 General organization, presentation, and page sizes.

5.1.1 TM organization. TMs prepared in accordance with this standard shall describe in accurate and appropriate detail the operator's, unit, direct support, intermediate (aviation), general support, and depot maintenance authorized by the Maintenance Allocation Chart (MAC). The operator's and maintenance procedures shall be organized in MAC Functional Group order.

5.1.2 Presentation. The manual shall be written for the user in accordance with the target audience description provided by the contracting activity. Technical content of all material included shall be accurate and easy to use.

5.1.3 Standard TM page size. Unless requirement is specifically excluded by the contracting activity, the manual shall be in vertical format and the page size shall be standard. The maximum printing area shall include all printed matter (e.g., text, illustrations, change bars, TM numbers, page numbers, etc.). Standard page sizes are as follows:

TABLE II. Standard TM page sizes (in inches).*

Style	Trim Size	Format	Maximum Printing Area
Standard	8-1/2 x 11	Vertical	7-1/4 x 9
	11 x 8-1/2	Horizontal	9 x 7-1/4

*NOTE: Text which is double column shall include a gutter between columns which is approximately 1/4 inch wide.

5.1.4 Other TM page sizes. Table III lists other authorized TM page sizes to be used as specified by the contracting activity.

TABLE III. Other authorized manual page sizes (in inches).

Style	Trim Size	Format	*Maximum Printing Area
Pocket	4 x 5-1/2	Vertical	3-1/8 x 4-1/2
	5-1/2 x 4	Horizontal	4-1/2 x 3-1/8
PCL Pocket	5 x 8	Vertical	4-3/4 x 7-3/4
Logbook	6-1/2 x 9-1/2	Vertical	5-1/2 x 8-1/2
	9-1/2 x 6-1/2	Horizontal	8-1/2 x 5-1/2
Double Standard	17 x 11	Horizontal	15-3/4 x 9
		Only	

*NOTE: The maximum printing area given in Table III shall include all printed matter (e.g., text, illustrations, change bars, publication numbers, page numbers, etc.). Text which is double column shall include a gutter between columns which is approximately 1/4 inch wide.

5.1.5 Volume size. When the number of printed pages (excluding pocket TMs) exceeds 1,500 pages or 750 sheets, the TM shall be divided into volumes. Each volume shall not exceed 1,500 pages or 750 sheets. A pocket TM (4 x 5-1/2 or 5-1/2 x 4 inches) or pocket TM volume shall not exceed 200 pages (100 sheets).

5.1.6 Margin data. Margin data (usually the headers and footers) shall be placed outside the area of the page used for either narrative text, full page tabular data or full page illustrations, but within the printing area dimensions of the page. When applicable, margin data shall also consist of the change number, security classification, and figure number and title. Full page illustrations, including those for foldout pages, shall have the margin data included on the page. Margin data shall not be on an overlay.

5.1.7 Headers and footers. Complete headers and footers shall be included on all pages except title block pages. (See figure 3 for examples.)

5.1.7.1 Headers. Headers shall include the TM number centered at the top of each page (See 5.5.1 and 5.5.2.) and other information as specified by the contracting activity. TM numbers for pocket TMs are not required on regular text pages (e.g., required on front and back covers only).

5.1.7.1.1 Security classification. When specified by the contracting activity, a classified TM shall be prepared. The security classification markings, including those for unclassified pages, shall be bold and at the top center of each page in accordance with DOD 5220.22-M. They shall reflect the

highest classification on the page. For foldouts, the security classifications shall be in bold face type, placed 3/4 inch from the right-hand edge, and repeated continuously to the left with four inches of space between each one.

5.1.7.2 Footers. Footers shall include the security classification markings, if any, the page numbers (See 5.5.3.1.), and other information as specified by the contracting activity. (See figure 3.)

5.1.7.2.1 Change designator. For change pages, the change designator shall be located approximately 1/2 inch to the left of the page number and on the same line.

Example: "Change 1 2-1"

5.1.7.2.2 Security classification. In classified manuals, the security classification markings, including those for unclassified pages, shall be bold and at the bottom center of each page in accordance with DOD 5220.22-M. They shall reflect the highest classification on the page. For foldouts, the security classifications shall be in bold face type, placed 3/4 inch from the right-hand edge, and repeated continuously to the left with four inches of space between each one.

5.1.7.2.3 Footnotes to text. For numbering footnotes to the text, consecutive superior numbers beginning with 1 shall be used. The numbering system shall be per chapter. Identical footnotes shall not be repeated within the chapter. Footnotes shall not be used to state mandatory requirements. Footnotes shall be placed at the end of the chapter wherein referenced. All footnotes shall be indented five spaces from the left margin and carryover lines shall return to the left margin. Footnote numbers shall be separated from the footnote text by two spaces. There shall be a one-inch horizontal rule placed at the bottom of the last page in the chapter, flush left two line spaces below the text and the first footnote placed under the rule.

Example:

"c. Install cleaned filter.

¹ For equipment with video clutter suppressor, filter is located inside cabinet door."

5.2 Text preparation details.

5.2.1 Clarity and language. For maximum clarity and usefulness, there shall be consistency in terminology and organization within the same manual or series of manuals. The U.S. Government Printing Office Style Manual shall be used as a general guide for capitalization, punctuation, compounding of words, numerals in the text, spelling of nontechnical words, etc. All essential information shall be included, either by direct statements or by

reference. Technical content shall be presented in language free of vague and ambiguous terms. The text shall be concise, accurate, and in simplified English. Highly technical terms shall be defined directly after their use or in a glossary. Quotation marks and underlining shall not be used for emphasis. For further guidance on the development of readable and comprehensive text, refer to MIL-STD-361-2.

5.2.2 Neutral terms. TMs shall make no reference to age, sex, race, or national origin. Use sex neutral terms, except avoid using the word "person." (Terms such as "midshipman" and "workman" are considered sex neutral.) Terms such as male and female connectors, pins, etc., are acceptable.

5.2.3 Referencing. Reference to other documents and information within the TM shall be held to a minimum. Reference made within the TM shall include only the necessary information. For example, if the entire chapter is applicable, only the chapter number shall be referenced; if the data needed is found in one or more paragraph(s), reference to the paragraph number(s) shall be made. The text shall refer to:

- a. Only models or types of equipment covered by the manual. To facilitate coverage of modified or additional models or types at a later date, references shall be held to a minimum consistent with clarity.
- b. The basic number for Government specifications and standards. When the contractor cannot ascertain the Government specification number, the contractor shall request this information from the contracting activity, furnishing complete information concerning the material's composition, properties, characteristics, applications, manufacturer's specification number, etc.

NOTE

When the metric system is used on the equipment, conversion to U.S. standards shall follow in parentheses. Unless requirement is specifically excluded by the contracting activity, U.S. measurements shall be converted to metric measurements.

- c. Temperature readings as calibrated on the equipment. If other than Fahrenheit, the equivalent in Fahrenheit shall follow in parentheses. General temperature references, such as room temperature, shall be given in degrees Fahrenheit (for example, "78°F").
- d. Speed, distance, and instrument readings as calibrated on the equipment (for example, "169.5 Nm (125 lb-ft)" or "125 lb-ft (169.5 Nm)").
- e. Switch positions and panel markings exactly as marked on the equipment. However, symbols on panel markings shall be spelled out when they cannot be produced by the

composing equipment used to prepare the manual, such as the symbol for "ohm," "infinity," etc.

- f. Measurements in U.S. standard units (e.g., ounces, pounds, gallons, inches, feet, knots, miles, etc.), except instances in which metric measurements are required.
- g. Illustrations by figure number and the sheet number for multisheet illustrations, when applicable (for example, "figure 4-1, sheet 1 of 5"). References shall be made only to illustrations within the same manual or another volume of the same manual. References to figures in another volume shall not include the volume number.
- h. Figure numbers on numbered and titled figures first, followed by the index number; for example, "(figure 2-6, 34)". However, when multiple references in a paragraph refer to the same figure, only the first reference shall indicate the figure number.

Example:

"4.8.1 Disassembly of Air Valve. Disassemble the air valve (figure 4-2) as follows:

- a. Unscrew safety disc retainer (1) from valve body (2).
- b. Remove safety disc (3) and safety disc washer (4) from valve body (2)."

When the index numbers continue in sequence for procedures requiring two or more pages, the figure number followed by a dash and the word "Continued" shall be repeated after the first reference on each succeeding page. If two or more figures are involved in the same sequence (procedure or task), the figure with the greater number of items shall be cited as described above. Index numbers for items on remaining figures shall have the index number follow the figure number, i.e., "(figure 3-5, 21)". In such cases, the paragraph lead-in shall contain a statement similar to the following:

"NOTE

Item numbers below refer to figure 3-4 unless otherwise indicated."

- i. Parts on diagrams by enough of their description or reference designator to identify the item (for example, "Resistor A6R11"). (Part numbers shall not be used in procedures and the narrative portion of the TM except when essential for identification.)
- j. Tables by table number (for example, "table 3-2"). Reference shall be made only to tables within the same manual or another volume of the same manual.

- k. Other supporting paragraphs in the same manual or another volume to the same manual by paragraph number. Step numbers and page numbers may be included when required. References to paragraphs in another volume shall not include the volume number. The word paragraph or subparagraph before the number shall be used (for example, "paragraph 4.3"). (Duplication of material within the manual shall be allowed for two pages or less.)
- l. Other subordinate paragraphs of the same primary paragraph as above or below (for example, "subparagraph j. above").
- m. Any major division of the manual in upper and lowercase (for example, Volume 5, Chapter 6, Section II, Appendix B, Table of Contents, Glossary, Index, etc.).
- n. Other publications by publication number and document name (omitting dates, page, figure, and paragraph numbers) to avoid duplication of material exceeding two pages. Information in other documents, two pages or less, shall be repeated in the TM rather than referenced. Reference shall be made only to publications easily available to the user and authorized at user level. (References to pending publication actions shall not be made.)
- o. Footnotes, when essential for reference, explanation, comments, or other information.
- p. Series of items as follows:
 - (1) By following the basic number with "-series" when all numbers in the series are included. For example, "TM 3-2411-401-series" includes all TM numbers beginning with 3-2411-401.
 - (2) By following the basic number with "series" (without dash) when the basic number is immediately followed by a letter or is succeeding a higher number. For example, 781 series could include 781A, 781K, etc.; DD Form 1570 series could include DD Form 1571, 1575, 1577, etc.

5.2.4 Equipment names and nomenclature. Nomenclature, other terms, and names shall be consistent within a manual and throughout parts lists, maintenance allocation charts, and other directly related manuals. Statements that explain applicability for individual items of equipment shall use specific serial numbers, block designations, model designations, or similar identification. Such terms as "on later equipment" and "on early serial numbers" shall not be used. National stock numbers shall not be used in the narrative portion of the TM, including procedural steps, illustrations, or illustration legends. Part numbers shall not be used in procedures and the narrative portion of the TM except when essential for identification.

5.2.5 Nomenclature deviation. Unless requirement is specifically excluded by the contracting activity, only approved names and official nomenclature (i.e., RPSTL) shall be used. If non-official nomenclature (common name) is approved, an appropriate nomenclature cross-reference listing shall be included in the TM. (See MIL-STD-361-6.) Shortened versions of the approved nomenclature are not considered deviations.

5.3 Readability/level and details of coverage. TMs shall be written at the Reading Grade Level (RGL) provided by the contracting activity. The RGL shall match the capability of the manual users. The method used to determine readability is optional. See MIL-STD-361-2 for a suggested method. See also the following paragraphs for details on abbreviations, acronyms, symbols, tables, warnings, cautions, notes, icons, energy efficiency, environmental protection, and covers, etc.

5.3.1 Abbreviations and acronyms.

- a. The first use of abbreviations and acronyms shall have the word(s) spelled out completely with the abbreviation or acronym in parenthesis immediately after the word(s). When a phrase is being abbreviated as an acronym, the first letter of each word shall be capitalized and elements of the acronym shall not be separated by periods (for example, "Repair Parts and Special Tools List (RPSTL)"). An excellent rule to follow is: "when in doubt, spell it out." Abbreviations and acronyms which are accepted as words (radar, sonar, laser, etc.) need not be spelled out.
- b. Abbreviations and acronyms used shall be in accordance with MIL-STD-12, except that abbreviations may be plural (s) or possessive ('s).
- c. If a manual is prepared on composing equipment which cannot produce a certain abbreviation or symbol, such as "+" for "plus or minus," a substitute symbol, such as "+/-" or "+ or -" may be used.
- d. New abbreviations, acronyms, and symbols shall not duplicate those presently listed in MIL-STD-12, if possible.
- e. All nonstandard abbreviations and symbols (excluding hazard, ESDS, and HCP symbols or icons) shall be explained in the abbreviation paragraph of Chapter 1 of the TM. (See MIL-STD-361-6.)
- f. Abbreviations used in figures and tables, but not found in the text or in any other portion of the TM, shall be spelled out in a footnote to the applicable figure or table.

5.3.2 Metric symbols. Metric symbols shall be in accordance with ASTM E380-86 and IEEE 945-84.

5.3.3 Military terms. Military terms used shall be in accordance with Joint Pub 1-02 or any approved dictionary or glossary of Army military terms.

5.3.4 Automatic electronic test and checkout terminology. Terms used for automatic electronic test and checkout shall be in accordance with MIL-STD-1309.

5.3.5 Use of "shall," "should," "may," and "will". Usage of "shall," "should," "may," and "will" shall be as follows:

- a. Shall - whenever expressing a provision that is binding.
- b. Should and may - whenever it is necessary to express nonmandatory provisions.
- c. Will - to express a declaration of purpose or simple future tense (for example, "Power for the meter will be supplied by the aircraft.").

5.3.6 Tables, charts, and graphs. Reference data (other than illustrations, drawings, and diagrams) or other information which would be more usable as a table, chart or graph shall be so presented. Tables, charts, and graphs shall be designed so that they are easily understood. Charts shall be presented as tables or figures, whichever is most appropriate. Graphs shall be considered illustrations and shall be assigned figure numbers.

5.3.7 Tabular material. When a small amount of tabular information is to be inserted and will not require referencing from adjacent text, it shall be included in the text without identifying it as a table.

5.3.8 Warnings, cautions, and notes. Warnings and cautions shall precede the text to which they apply. Notes shall precede or follow applicable text, depending upon the material to be highlighted. Warnings, cautions, and notes shall not contain procedural steps nor shall the headers be numbered. The header **WARNING**, **CAUTION**, or **NOTE** shall be bold and centered above each warning, caution, or note. When a warning, caution, or note consists of two or more paragraphs, the header **WARNING**, **CAUTION**, or **NOTE** shall not be repeated above each paragraph. All lines of warnings, cautions, and notes shall be indented five spaces or characters from both left and right margins. When warnings, cautions, or notes occur for the same text, the warnings shall appear first, cautions second, and notes last. Warnings, cautions, and notes shall be short, concise, and used only to emphasize important or critical data. Warnings and cautions shall state the hazard and result or reason, unless obvious. Figure 11 illustrates the styles for warnings, cautions, and notes.

5.3.8.1 Hazardous materials warnings and icons. Whenever a warning can be presented as an icon or a combination of icons, this format shall be used. Icons used shall either be on the

approved list in Appendix A of this document or shall be added or changed as specified and approved by the contracting activity.

5.3.8.1.1 Icons. Each single hazard icon used shall be defined in the warning summary. (See figure 12 for examples of single hazard icons so defined. See Appendix A for the approved listing of single hazard icons and their definitions.)

5.3.8.1.2 Hazardous materials warnings format. Hazardous materials warnings shall be listed in the warning summary. (See figure 12.) This shall be the only source for complete printed hazardous materials warnings and shall not be repeated elsewhere in the manual. The general requirements are as follows:

- a. Every hazardous materials warning shall be keyed with the nomenclature for the hazardous material and the hazard icon(s) associated with that hazardous material.
- b. The same nomenclature and associated hazard icons used in the warning summary shall be used in the text to identify the hazard(s) associated with that hazardous material. (See figure 13.)
- c. Hazards that result from a combination of materials shall require separate warnings in the warning summary for each substance. These warnings shall clearly indicate that mixing or combining the materials creates the hazard.
- d. The detailed warnings shall be listed alphabetically by the nomenclature of the hazardous material.
- e. Detailed warnings shall still be provided in the text when the equipment or procedure contributes to a hazard not related to use or presence of a hazardous material.

5.3.8.1.3 Use of hazardous materials warnings. Hazardous materials warnings shall precede the text to which they apply. The header **WARNING** shall not be required. The warnings shall consist of the icons and the nomenclature of the hazardous material. (See figure 13.)

5.3.9 Health hazards. Procedures prescribed for the operation of equipment shall be consistent with the safety standards established by the Occupational Safety and Health Act (OSHA) Public Law 91-596 and Executive Order 12191. When exposure to hazardous chemicals or adverse health factors or use of the equipment cannot be eliminated, warnings shall be used and/or this information shall be placed in the warning summary. A list of personnel protective devices shall be included.

5.3.10 Energy efficiency requirements. TMs covering products that directly consume energy in normal operations, and that commonly have a method of expressing energy efficiency, shall include their energy efficiency rating in the equipment data table in Chapter 1.

5.3.11 Environmental protection. Instructions for the use, transportation, handling, storage, or disposal of such substances as fuels, toxic and hazardous substances, chemicals, ordnance, and munitions shall meet the applicable requirements of the Federal Environmental Protection Standards (standards to be provided by the contracting activity).

5.3.12 Proprietary names. Trade names, copyrighted names, or other proprietary names applying exclusively to the product of one company shall not be used unless the items cannot be adequately described because of the technical involvement, construction, or composition. In such instances, one, and if possible, several commercial products shall be included, followed by the words "or equal." The same shall apply to manufacturers' part numbers or drawing numbers for minor parts where it is impractical to specify the exact requirements. Insofar as practical, the particular characteristics required shall be included to define "or equal."

5.3.13 Front cover. When placing information on the front cover, spacing between the necessary items shall be such as to result in an attractive, well balanced cover. Horizontal lines 1 point high shall be placed across the page, one just below the TM number and the second just above the service nomenclature. (See figure 14.) (See MIL-STD-361-11 for additional requirements when preparing a front cover for a Repair Parts and Special Tools List.) The front cover shall contain as a minimum the following:

- a. Security classification (when required, see 5.7).
- b. TM number (5.3.13.1).
- c. TM title (5.3.13.1, 5.3.13.1.1 through 5.3.13.1.3).
- d. National stock number (NSN) for item(s) covered (5.3.13.1.2).
- e. End item code (EIC) (as specified in the Army Master Data File (AMDF), 5.3.13.1.2).
- f. Subtitle (when required, see 5.3.13.1.3).
- g. Illustration (when required, see 5.3.13.2).
- h. Availability statement (when required, see 5.3.13.3).
- i. Supersedure notice (revisions only, see 5.3.13.4).
- j. Disclosure notice (5.3.13.5).
- k. Distribution statement (as selected from MIL-STD-1806, see 5.3.13.6).
- l. Export control notice (5.3.13.7).
- m. Destruction notice (5.3.13.8).

- n. Service nomenclature (5.3.13.9).
- o. Change number and date (when required, see 5.6.1.1).
- p. TM date (5.3.13.10).

5.3.13.1 TM title and number. The TM title and number shall consist of the following items (each, as appropriate, to be provided by the contracting activity). (There may be more than one TM number. See 5.5.1.) These items shall be located as shown on figures 14 and 15:

- a. TM number.
- b. Header TECHNICAL MANUAL.
- c. Type of manual (operator instructions, maintenance, RPSTL, etc.).
- d. Maintenance level (if restrictive, such as direct support and general support maintenance).
- e. Prime title (official name/nomenclature).
- f. Subtitle (as applicable).

5.3.13.1.1 Type of TM and maintenance levels. The type of TM (operator instructions, maintenance, RPSTL, etc.), provided by the contracting activity, shall be placed beneath the "TECHNICAL MANUAL" header. The levels of maintenance (also to be provided by the contracting activity), as appropriate, shall be placed with or beneath the manual type. (See figure 15.)

5.3.13.1.2 Prime title. The nomenclature (to be provided by the contracting activity) of the equipment, type, model, part number, or subject (blocks, serial numbers, or registration numbers, if appropriate) shall be positioned below the words identifying the manual type or maintenance level, if applicable. The national stock number (NSN), end item code (EIC, as specified in the Army Master Data File (AMDF)), and identification of other equipment covered in the manual shall be indicated. The classification (to be provided by the contracting activity) of the equipment nomenclature shall be indicated (U), (C), (S), as specified in DOD 5220.22-M if the manual itself is classified. The prime title shall be the same on all volumes of a multivolume set. For Depot Maintenance Work Requirements (DMWRs) the title shall identify all related items by item name, NSN, and EIC covered by the DMWR which, when the work is complete, may be turned in to supply separately. (See figure 15.)

5.3.13.1.3 Subtitle. If applicable, a subtitle (to be provided by the contracting activity) shall be located immediately below the prime title to indicate the volume number and contents of every separately bound volume of a TM. (See figure 8.)

5.3.13.2 Front cover equipment illustration. Unless requirement is specifically excluded by the contracting activity, the front cover shall contain an illustration of the equipment. When required, the front cover shall include a line drawing of the equipment/end item. The drawing shall be three-dimensional (isometric or equal) and clearly depict pertinent components of the item. The illustration may precede or follow the end item nomenclature. (See figure 15.)

5.3.13.3 Availability statement. For Depot Maintenance Work Requirements only, the front cover shall contain the following availability statement:

"This publication is not available through U.S. Army Publications Centers. It must be obtained from (insert the name and address of the proponent or responsible activity.)" (See figure 8).

5.3.13.4 Supersedure notice. When the manual, revision, or change under preparation supersedes other manuals or portions of manuals, a supersedure notice, provided by the contracting activity, shall be placed on the front cover. (See figure 15.) The applicable portions of the following shall be used:

"SUPERSEDURE NOTICE - This (manual, revision, or change) supersedes (insert applicable manual, revision, or change number or portions thereof) dated (date of superseded document)."

5.3.13.5 Disclosure notice. Unless requirement is specifically excluded by the contracting activity, the following disclosure notice shall be placed on the front cover of all classified and unclassified manuals, except those with Distribution Statement A (figure 14):

"This information is furnished upon the condition that it will not be released to another nation without the specific authority of the Department of the Army of the United States, that it will be used for military purposes only, that individual or corporate rights originating in the information, whether patented or not, will be respected, that the recipient will report promptly to the United States, any known or suspected compromise, and that the information will be provided substantially the same degree of security afforded it by the Department of Defense of the United States. Also, regardless of any other markings on the document, it will not be downgraded or declassified without written approval of the originating United States agency."

5.3.13.6 Distribution statement. All TMs shall have a distribution statement placed on the front cover for each manual, supplement, revision, or change. (See figure 15.) The appropriate distribution statement, selected from MIL-STD-1806, shall be provided by the contracting activity. Selection of the statement shall be in accordance with the provisions of MIL-STD-1806. Unless requirement is specifically excluded by the contracting activity, Distribution Statement C shall be used.

5.3.13.7 Export control notice. When required by the provisions of MIL-STD-1806, an Export Control Notice indicated by a warning, to be placed on the front cover, shall be provided by the contracting activity. (See figure 15.)

5.3.13.8 Destruction notice. All TMs marked with distribution statements B, C, D, E, F, or X shall be marked with the destruction notice provided by the contracting activity from DOD 5230.24. (See figure 15.)

5.3.13.9 Service nomenclature. The nomenclature HEADQUARTERS, DEPARTMENT OF THE ARMY, shall be centered above the date on the front cover. (See figure 15.)

5.3.13.10 TM date. TMs shall be dated. The TM date shall be the date at which the last material to be included was received (copy freeze date, provided by the contracting activity - refer to 3.6). The day, month, and year shall be given in that sequence (for example, "7 JULY 1992"). (See figure 15.)

5.3.14 For Army COMSEC manuals use. Unless requirement is specifically excluded by the contracting activity, classified TMs shall contain the notice FOR OFFICIAL USE ONLY. It shall be placed above the security classification at the bottom center of the cover and all manual pages.

5.4 Front and back matter. Front matter consists of the front cover and all pages of the TM preceding the first text page of Chapter 1. Back matter includes DA Forms 2028-2, the authentication page, and the back cover.

5.4.1 Front matter. As applicable, material preceding the first text page shall consist of the following in the order specified below. (See 5.4.1.1 through 5.4.1.5.1 for applicability.)

- Front cover (5.4.1.1).
- Warning summary (5.4.1.2).
- Change sheet (for changes to looseleaf TMs) (5.4.1.3 and 5.6.1.5).
- Title block page (5.4.1.1).
 - Reporting errors and recommending improvements (5.4.1.1.1).
- Table of Contents (5.4.1.4).
- How To Use This Manual (5.4.1.5).

5.4.1.1 Front cover and title block page. TMs shall have a front cover and a title block page. The title block page shall follow the warning summary and change sheet (if any). (See MIL-STD-361-11 for additional requirements when preparing a front cover and title block page for a Repair Parts and Special Tools List.) The information on the front cover and the title block page shall be identical except the title block page shall additionally include the reporting errors and recommending improvements statement and may contain Table of Contents data. The title block page shall not include the equipment

illustration(s). TM date shall be included on both. The title block page shall start on a right-hand page. (See figure 16.)

5.4.1.1.1 Reporting errors and recommending improvements statement. A "reporting errors and recommending improvements" statement (figure 16) shall appear below the prime title, NSN, EIC, and subtitle (if any) on the title block page. The address of the responsible proponent shall be inserted in the statement.

- a. Unclassified/standard TM. Except for classified TMs, oversized TMs, pocket size TMs, and TMs with less than eight pages, the following statement shall precede the Table of Contents title:

"REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS
You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: (name and address of proponent). A reply will be furnished to you."

- b. Pocket size TMs, oversized TMs, and TMs with less than eight pages. For pocket size TMs, oversized TMs, and TMs with less than eight pages, the following statement shall precede the Table of Contents title:

"REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS
You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), direct to: (name and address of proponent). A reply will be furnished to you."

- c. Classified TMs. For classified TMs, the following statement shall precede the Table of Contents title:

"REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS
You can help improve this manual. If you find any mistakes or if you know of a way to improve this manual, write and tell us about it. Address your correspondence to (name and address of proponent). When dealing with classified information, make sure that your correspondence is properly marked and is handled in accordance with AR 380-5."

- d. See also 5.4.1.7.

5.4.1.2 Warning summary (including first aid data).

- a. All TMs containing warnings or cautions shall have a warning summary which shall include first aid data. The warning summary shall appear on the inside front cover. If the front cover data extends to the inside of the front cover, the warning summary shall appear on the page immediately after the front cover. If the warnings cannot

be summarized on the inside front cover, they shall be continued on the page(s) immediately thereafter. These pages shall be numbered with lowercase letters a, b, c, etc.

- b. The warning summary shall provide the user with important warnings that appear throughout the manual. Warnings involving the same hazard and repeated in several places throughout the manual shall be summarized and appear only once in the warning summary. The warning summary shall not be a mere word-for-word repetition of all warnings in the manual.
- c. The warning summary shall include each general type of warning and warning symbol (to include icons) used within the manual. The warning summary shall also include general subject data such as radiation, chemicals, voltage, gas pressure, and laser light or other hazards that may be encountered by the user. (See figures 12, 17, and 18.)
- d. The warning summary shall include general precautions applicable to the safety and health exposures found in the TM. The general safety precautions shall not be repeated in the text of the manual. The use of safety glasses while soldering or that a soldering iron is hot, in an electronics manual, are examples of general safety precautions not to be repeated in the text. Soldering may not be an everyday occurrence in a manual covering propellers; therefore, warnings or cautions related to soldering techniques shall be included in the text in such cases. The precautions should be those that concern common tasks encountered while working on the equipment. When in doubt, place the warning or caution in the text.
- e. For all TMs (excluding operator's) the warning summary shall have first aid data which includes reference to FM 21-11. The first aid data text shall describe any first aid data not included in FM 21-11, but needed due to the dangers that may be encountered with the equipment.
- f. For all TMs on weapons involving the use of ammunition (excluding operator's), the warning summary shall include reference to TM 9-1300-206 and related publications. Any additional first aid instructions not included in TM 9-1300-206, but needed to ensure safety and appropriate for inclusion here, shall be described.

5.4.1.3 Change sheet. A change to a loose-leaf manual shall include a change sheet which follows the warning summary. See 5.6.1.5 for format requirements.

5.4.1.4 Table of Contents. A Table of Contents listing chapters, sections, and primary paragraphs in the same order and with the exact titles as used in the text, with page number reference, shall be required for all TMs. (See figure 19.) When

space permits, the Table of Contents shall begin on the title block page below the last item of the title block page. If space does not permit, it shall begin on the next page. The Table of Contents shall contain data as applicable to the specific manual. The security classification, if any, of chapter, section, and paragraph titles shall be indicated. There shall be no Table of Contents preceding individual chapters or sections. Each volume of a multivolume manual shall contain its own Table of Contents and shall reference companion volumes for the same TM. Volume 1 shall contain a complete Table of Contents covering the entire set. Entries shall indicate volume in which the referenced material appears (for example, "Operating Instructions, Vol 1"). For combined narrative-RPSTL manuals, refer to MIL-STD-361-11 for format requirements for the RPSTL portion of the Table of Contents.

5.4.1.5 How To Use This Manual information.

- a. "How to Use This Manual" information shall be located after the Table of Contents and before the first chapter of the TM. The title, "HOW TO USE THIS MANUAL," shall be bold and centered at the top of the page.
- b. The information shall familiarize the user with special or unusual features of the manual. Coverage shall lead the user through the TM and explain important features of the organization and content. "How To Use This Manual" information shall not repeat instructions given within the chapters.
- c. The "How To Use This Manual" paragraph shall explain and reference Appendix A, References.
- d. For all TMs (excluding operator's) the "How To Use This Manual" information shall include reference to the associated repair parts and special tools list (RPSTL) and an explanation on how to use the RPSTL in conjunction with the manual.

5.4.1.5.1 International standardization agreements. When specified by the contracting activity, the "How To Use This Manual" shall contain the following:

"NOTE

Certain provisions of this technical manual (identify by chapter, section, paragraph, or similar manner, if appropriate) are the subject of international standardization agreement (insert the ABCA or ASCC standard number, the NATO, STANAG, NETR, or NEPR number, or appropriate documentary reference). When change, revision, or cancellation of this technical manual is proposed which will modify the international agreement concerned, the technical manual management activity will take appropriate action through international standardization channels, including departmental

standardization offices, to change the agreement or make other appropriate accommodations."

5.4.1.6 Back matter. As applicable, material following the last text page shall consist of the following: Reporting Errors and Recommending Improvements DA Forms 2028-2 (5.4.1.7), the authentication page (5.4.1.8), and back cover, including metric conversion chart (5.4.1.9).

5.4.1.7 Reporting errors and recommending improvements DA Form 2028-2. One filled-out sample copy of DA Form 2028-2 (figure 20), and three blank DA Forms 2028-2 with the TM number, date, and title shall be included at the back of every unclassified TM (except for oversize TMs, pocket size TMs, and TMs with less than eight pages). The filled out sample will include guidelines for completing the form. The three blank copies shall be tear-out forms, preprinted with proponent's address on the reverse side.

5.4.1.8 Authentication page. The authentication page, provided by the contracting activity, shall be the last page of the TM. (See MIL-STD-361-8 for an illustration of this page.)

5.4.1.9 Back cover. The outside back cover shall be blank, except for pocket TMs. For pocket TMs, the outside back cover shall include the TM number. When applicable, a metric conversion table, covering applicable units included in the TM, shall be placed on the inside back cover.

5.5 Numbering.

5.5.1 TM number assignment. The TM number, as provided by the contracting activity, shall be in bold type and located on each page as specified in 5.5.2 and on the outer segment of each foldout page. If the manual is jointly used, each Service's number shall be prefixed with the word Air Force, Army, Marine Corps, or Navy (NAVSEA) (NAVAIR), as applicable. The using activity's TM number(s) shall be in alphabetical sequence following the contracting activity's manual number.

Example:

"ARMY	TM 11-1510-204-34
AIR FORCE	TO 21M-LGM30G-12
MARINE CORPS	TM 12345A-15/1
NAVY (NAVAIR)	AI-F18AA-WRM-070
NAVY (NAVSEA)	SE211-FA-MMA-010/SPS-10A"

5.5.2 TM number location. For all TMs the TM number shall be in bold face type at the top right on the front cover page. For all TMs (except pocket TMs) the TM number shall also be in bold face type centered at the top of each page and the top outer segment of each foldout page. Pocket TM numbers shall appear on the front and back cover only. This number shall not be changed on change pages. (See figures 3 and 15.)

5.5.3 Pagination.

5.5.3.1 Page numbers. For all TMs page numbers shall be centered at the bottom of the page. Even numbers, including zero, shall be assigned to left-hand pages and odd numbers to right-hand pages. For horizontal TMs, the upper pages shall have even numbers, and the lower pages shall have odd numbers. The page number for a foldout page shall be so placed (lower outer edge ending at the outside margin) that the number will be visible when the printed page is folded. Page numbers shall be in bold face type.

5.5.3.2 Front matter. Warning summary pages shall be numbered with lowercase a, b, c, etc. Change sheets shall be unnumbered. First page of a title block page shall be unnumbered. Any subsequent title block pages, Table of Contents, and How To Use This Manual section preceding Chapter 1 shall be assigned sequential, lowercase Roman numerals beginning with ii.

5.5.3.3 Brief manual. The first page of a brief manual that uses an abbreviated title, below which the beginning text is placed, shall be assigned Arabic numeral 1. (See figure 10.)

5.5.3.4 Numbering for pages, primary paragraphs, tables, and figures.

- a. Pages, figures, and tables for chapters shall be numbered consecutively within each chapter, using two-part Arabic numerals separated by a hyphen. Primary paragraph numbers shall be two-part Arabic numerals separated by a period. The first part shall be the chapter number and the second part the order within the chapter.

Example:

2-17 shall be the 17th page in Chapter 2; figure 2-17 shall be the 17th figure in Chapter 2; table 2-17 shall be the 17th table in Chapter 2; and paragraph 2.17 shall be the 17th primary paragraph in Chapter 2.

- b. When a chapter starts with a full page illustration and the preceding left-hand page would be blank, the illustration shall be placed on the left-hand page and the page numbered zero; for example, "2-0," "3-0," etc. If a chapter is so short that the chapter can be completed on one page, permitting another chapter to start on the same page, both chapter numbers shall be indicated by the page number, for example, "3-1/4-1". For numbering of blank pages, refer to 5.5.3.5. Multisheet figures shall be consecutively sheet numbered following the title; for example, "Figure 2-17. Wing Hydraulic Assembly (Sheet 1 of 6)". Remaining sheets shall be numbered in consecutive order, "Sheet 2 of 6," "Sheet 3 of 6," and so forth.

5.5.3.5 Blank page numbers. A blank page shall be assigned a number, but it shall appear on the preceding or following page.

For example, if page 10 of Chapter 1 is blank, page 9 shall have the number 1-9/1-10 blank; or if page 9 of Chapter 1 is blank, page 10 shall have the number 1-9 blank/1-10. Also, when applicable, an added page, such as 1-10.1 shall show that 1-10.2 is blank.

5.5.3.6 Deleted pages. When page number continuity is broken by deletion of a page and a blank page results, a statement indicating the deletion shall be placed in the bottom margin of the preceding page, or top margin of the succeeding page (for example, "Page ___ deleted.") This shall also apply when two back-to-back pages are deleted. The statement shall be used only if the same manual change affects a preceding or succeeding page. A preceding or following page shall not be changed merely to add this statement. In such instances, the change sheet listing will be adequate.

5.5.3.7 Appendixes. Appendixes shall be identified by bold capital letters (for example, "APPENDIX A," "APPENDIX B," etc.). The appendix identifier shall be centered two line spaces below the manual number on each page. The appendix header shall be in all bold capital letters and centered two lines below the appendix identifier on the beginning page only. Pages, paragraphs, figures, and tables in appendixes shall be consecutively numbered in Arabic numerals preceded by a hyphen and the capital letter of the appendix.

Example:

A-17 shall be the 17th page in Appendix A; primary paragraph B-17 shall be the 17th paragraph in Appendix B; figure C-17 shall be the 17th figure in Appendix C; table D-17 shall be the 17th table in Appendix D.

5.5.3.8 Glossary pages. The page numbers for a glossary shall be consecutively numbered in Arabic numerals with the word Glossary and a hyphen preceding the page number (for example, "Glossary-1").

5.5.3.9 Index pages. Page numbers for indexes shall be consecutively numbered in Arabic numerals with the word Index and a hyphen preceding the page number (for example, "Index-1").

5.5.4 Numbering of added material.

- a. When paragraphs, figures, tables, or pages are added by a change, existing paragraphs, figures, tables, or pages shall be renumbered. If this involves renumbering more than 10 items or will affect more than five pages, the following method shall be used. Except when added at the end of a sequence, in which case the next consecutive number shall be used, paragraphs shall be numbered by adding an uppercase alpha character (for example, "2.4A," "2.4B," "2.4.1A," etc.) to the preceding paragraph number. Added figures, tables, pages, or sheets in multisheet figures shall be numbered by adding a decimal (for

example, "Figure 3-1.1," "page 3-26.1," etc.). When it is necessary to add between items which have already been added by the preceding method, an alpha character shall be used (for example, a page added between 3-26.2 and 3-26.3 would be "3-26.2A").

- b. Pages shall not be added between a right-hand (odd numbered) and a left-hand (even numbered) page. When new material is to be added to a right-hand page, any overrun which fits shall be carried to the preceding or following left-hand page. For example, where material is to be added to a right-hand page (for example, 2-5) and adequate blank space is available on the preceding left-hand page (for example, 2-4), material at the top of page 2-5 shall be moved to the bottom of page 2-4, and the new material added on page 2-5. When already existing space is not adequate, the overrun from the left-hand page, following the affected right-hand page, shall be placed on an added page.

5.5.5 Index number changes. Where a change to an illustration adds index numbers between existing numbers, the added numbers shall be the same as the preceding index number with an added decimal number (for example, "22.1," "22.2," etc). (See MIL-STD-361-11 for index number changes to a Repair Parts and Special Tools List.)

5.6 Changes, revisions, and supplements.

5.6.1 Changes. When specified by the contracting activity, a change shall be prepared. Changes shall consist of the change sheet and change pages. Except for silk screened or otherwise expensive covers, the front cover and title block page of unclassified TMs shall be updated to reflect the current Distribution Statement. The change package shall conform to the style and format of the basic TM and shall incorporate all approved information (for example, engineering change proposals, equipment alterations, field changes, etc.). The change shall also incorporate resolution of outstanding deficiencies. Copy shall be furnished for both sides of the page on which a change is made, even when a change is made to one side only. (For changes to RPSTLs, see MIL-STD-361-11.)

5.6.1.1 Numbering and dating changes. Each change to a manual shall be numbered in sequence. Identification of changes after each revision of a manual shall begin over again with number 1. Changes shall be dated. Unless requirement is specifically excluded by the contracting activity, the change date shall be the date at which the material to be included was received (copy freeze date, provided by the contracting activity). The change designator and date shall be shown on the front cover, title block page, and change sheet (figure 21).

5.6.1.2 Deleted paragraphs, steps, figures, items, and tables. Where a change deletes a paragraph, step, substep, figure, item in a list (legend), or table without substituting another, the

space formerly occupied by the deleted item may be used for other instructions, allowing sufficient space to provide 1/4 inch above and below a sentence such as "Paragraph 4.2 deleted." The Table of Contents and alphabetical index shall be changed as necessary. (Also see 5.5.3.5 and 5.5.3.6.)

5.6.1.3 Change designator. Each page containing changed or added material shall bear the words "Change ..." placed at the bottom of the page on the same line with the page number. For all change pages, including foldout change pages, the change designator shall end approximately 1/2-inch to the left of the page number. (See figure 22.) The change designator requirement shall also be applicable to all added pages, including those placed at the end of a manual.

5.6.1.4 Change symbols for text and tables. Changes to the text and tables shall be indicated by a 6-point wide vertical line (change bar) opposite the changed, deleted, or added text (except as noted in subparagraphs a. through e. below). The change bar shall be placed in the margin opposite the binding edge for page wide material and in the outer margin for double column material. Exception: pages with emergency markings (black diagonal lines around three edges) shall have the change bars placed along the inner margins for page wide material; for double column, the change bars which apply to the outside column shall be placed in the gutter between columns. (See figure 22.) When tables are changed or added, the change bar shall also be placed to the left of the table number and title. An explanation of the method(s) used shall be included in the change sheets. (See also 5.5.4 and 5.5.5.) Change symbols from a previous change shall be deleted when a page is subsequently changed. Symbols shall show current changes only. (See MIL-STD-361-3 for information concerning change symbols for illustrations.) The 6-point change bar may be reduced 10 percent in width to allow automatic composing equipment use, providing it remains legible and obvious. If the composing equipment is incapable of producing a vertical line, another change symbol may be used as specified by the contracting activity (for example, a number sign "#;" plus sign "+"; black circle; black square; the letter "C," "R," or "X"). The meaning of these symbols shall be explained on the change sheet. Change symbols are not required for:

- a. Introductory material.
- b. Indexes and tabular data where the change cannot be identified.
- c. Blank space resulting from the deletion of text, an illustration, part of an illustration or a table.
- d. Correction of minor inaccuracies, such as spelling, punctuation, relocation of material, renumbering paragraphs, etc., unless such correction changes the meaning of instructive information and procedures.
- e. Replacement or addition of a complete chapter or section.

5.6.1.5 Change sheet. A change sheet to a loose-leaf manual shall be prepared in the format shown on figure 21. The change sheet shall:

- a. Include the following statements: "(TM number and date) is changed as follows: (1) Remove old pages and insert new pages as indicated below. (2) File this sheet in the front of the manual for reference."
- b. Be the first page of each change with additional pages as required.
- c. If applicable, indicate that the change is the result of an equipment alteration (for example, "ORDALT") and identify the alteration by number.
- d. Include the following statement if applicable: "This change addresses equipment modification. Do not incorporate this change until your equipment is modified." Include an instruction for holders of the manuals at accomplishing activities not to incorporate the change in their copies of the manual until it is verified that the alteration has been accomplished. Also, include an instruction for all other holders of the manual to incorporate the changes in their copies of the manual.
- e. In addition to the explanation of the major changes to the equipment, include an explanation of the major changes to the manual and reasons for the changes.
- f. Include an explanation that an entire chapter or section has been replaced or added, if applicable.
- g. Include an explanation of the change symbols used.
- h. Provide clear instructions for required changes listed page by page.
- i. Specify deleted or added pages.

5.6.2 Revisions. When required by contract, a revision shall be prepared. Revisions shall incorporate current information from previously issued changes to the existing manual and any other appropriate new information (for example, Maintenance Allocation Chart changes, Modification Work Orders, engineering drawing changes, DA Form 2028s and 2028-2s, etc.). When a TM is revised, the revision shall be written to the latest version specifications and standards and shall be in accordance with the most current doctrine. Revised TMs shall be verified in accordance with MIL-STD-361-4.

5.6.2.1 Renumbering and removal. In a revision all pages, paragraphs, figures, and tables shall be renumbered, as necessary, to eliminate all number suffixes and alpha characters and to establish correct sequence. Revisions shall be prepared to current specifications and standards. All change numbers (and

change dates, if any) shall be removed from pages. All partial pages and miniature hands, shading, screening, change bars, and other change symbols shall be eliminated. Index numbers for each separate figure shall start with the Arabic number 1 and continue consecutively.

5.6.3 Supplements. When required by contract, a supplement shall be prepared. (Refer to 3.16 for definition.) It shall conform in style and format with the existing manual. The title block page of the supplement shall contain a cross-reference note to the basic manual. The distribution statement from the basic manual shall be placed on the supplement title block page. (See figures 23 and 24.) The supplement type shall be as specified by the contracting activity as follows:

- a. Routine supplement.
- b. Classified supplement.
- c. Safety supplement.
- d. Operational supplement.

5.6.3.1 Classified supplements. Classified supplements shall contain the minimum amount of information required to protect security and maintain continuity of thought. Contracting activity approval is required for each classified supplement.

5.6.3.2 Safety supplement (SS). Requirements for a safety supplement shall be as follows:

- a. All text, lettering, numbering, etc., for safety supplements shall be in red.
- b. The title block page of a safety supplement shall have red multiple SSS along the top, bottom, and side borders with the words SAFETY SUPPLEMENT at the bottom of the page. The words SAFETY SUPPLEMENT shall be positioned above the words TECHNICAL MANUAL. The nomenclature shall be the same as the basic manual. The responsibility notice shall be positioned as shown in figure 23.
- c. A notice placed under the item name on the supplement title block page shall reference the basic manual supplemented, and, if applicable, reference any publication(s) replaced.

Example:

"This publication supplements TM 9-1230-561-34, dated 13 September 1989, with no changes to the text."

- d. The publication date shall be the same as the copy freeze date.

- e. The security markings shall be the same as for other title block pages.

5.6.3.3 Operational supplements (OS). Detailed requirements for formal operational supplements as shown in figure 24 shall be the same as for formal safety supplements except:

- a. The margin shall consist of multiple OSs in lieu of SSs.
- b. The words OPERATIONAL SUPPLEMENT in lieu of SAFETY SUPPLEMENT.
- c. The supplement shall be printed in black.

5.6.3.4 Routine supplements. A routine supplement title block page will be the same as the operational supplement title block page except that the title shall be the single word SUPPLEMENT and margins shall be blank.

5.6.3.5 Incorporation of supplements into manuals. Whenever practical, supplements, other than those of a higher classification, shall be incorporated into the manual's next change.

5.7 Security classification. The overall security classification assigned to a TM shall agree with the highest security classification assigned to any portion within. The overall security classification shall be placed at the top and bottom of the front cover and title block page (figure 14). Security classification markings shall be in accordance with DOD 5220.22-M and 5200.1-R.

5.8 Quality assurance. Quality assurance and quality control for TMs, revisions, supplements, and changes shall be in accordance with MIL-STD-361-4.

5.9 Packaging and preparation for delivery. TMs, revisions, supplements, and changes shall be packaged in accordance with MIL-STD-361-5.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. This document prescribes the writing style and format requirements applicable to various types of technical manuals, revisions, supplements, and changes prepared by or for the Department of the Army.

6.2 Issue of DODISS. When this document is used in acquisition, the applicable issue of the DODISS must be cited in the solicitation. (See 2.1.1.)

6.3 Tailoring guidance. The contracting activity should tailor any required options offered herein in accordance with MIL-M-63008.

6.4 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this standard.
- b. Issue of DODISS to be cited in the solicitation, and, if required, the specific issue of individual documents referenced. (See 2.1.1.)
- c. Written approval from the U.S. Army Publications and Printing Command for color and designation of the color(s) to be used (4.1.4).
- d. Target audience description (5.1.2).
- e. Reading Grade Level (RGL) of the target audience (5.3).
- f. Applicable requirements of the Federal Environmental Protection Standards (5.3.11).
- g. Type of manual (operator, maintenance, RPSTL, etc.) (5.3.13.1.1).
- h. Maintenance level(s) (5.3.13.1.1).
- i. TM title and/or classification of the equipment nomenclature (5.3.13.1.2).
- j. TM subtitle, if required (5.3.13.1.3).
- k. Supersedure notice, if required (5.3.13.4).
- l. Distribution statement selected from MIL-STD-1806 (5.3.13.6).

- m. Export control notice, if required by the provisions of MIL-STD-1806 (5.3.13.7).
- n. Destruction notice, if required, from DOD 5230.24 (5.3.13.8).
- o. TM date or change date/copy freeze date (5.3.13.10, 5.6.1.1).
- p. Authentication page (5.4.1.8).
- q. TM number (5.5.1).
- r. Classified supplement, if required (5.6.3.1).
- s. Requirements for electronic presentation (digitizing) of icons, if needed (Appendix A, 40.2b).

6.5 Supersession data. This document consolidates, standardizes, and supersedes the writing style and format requirements contained in the following documents:

- MIL-M-49502(TM) - Manuals, Technical: Repair Parts and Special Tools List.
- MIL-M-49504(TM) - Manuals, Technical: Combat Vehicle Precombat Checklist.
- MIL-M-63004C(TM) - Manuals, Technical: Preparation of Lubrication Orders.
- MIL-M-63036D(TM) - Manuals, Technical: Operators, Preparation of.
- MIL-M-63038C(TM) - Manuals, Technical: Organizational and Aviation Unit, Direct Support or Aviation Intermediate, and General Support Maintenance.
- MIL-M-63041D(TM) - Manuals, Technical: Preparation of Depot Maintenance Work Requirements.

6.6 Subject term (key word) listing. The following terms are to be used to identify this document during retrieval searches:

- Acronyms
- Boxhead title
- Changes, revisions, and supplements
- Copy freeze date
- Numbering
- Readability
- Security classification
- Specifications and standards
- Style and format
- Supersedure notice
- Tailoring

Text
TM page size
Volume

5.2.2 Installation.

- a. **HCP** Install lead (1).
- b. Install screw (6), two new lockwashers (7), and lug terminal (8) in panel boss (9).

HCP SYMBOL EXAMPLE

CAUTION

NUCLEAR HARDNESS. A hardness-critical process or step is identified by the symbol **HCP**. All paragraphs, procedures, and steps identified by the HCP symbol must be followed as written to ensure nuclear hardness is not degraded. Maintenance actions which could inadvertently degrade hardness, but which are not directly involved in establishing nuclear hardness, will not be annotated with the symbol, but will be preceded by a caution similar to the two examples:

CAUTION

To prevent degrading nuclear hardness, nuclear-hardened parts must be replaced with authorized parts only.

To prevent degrading nuclear hardness of the overall assembly, do not attempt to repair a part at a lower-than-authorized maintenance level.

The symbol **HCP** is placed before the task title when the complete task is considered hardness critical. When only certain steps within a task are hardness critical, the symbol **HCP** is placed before the main level step. Follow the General Maintenance Instructions located in Appendix F for **HCP** Cleaning and Installing Items to Maintain Hardness-Critical Integrity such as harnesses, electrical connectors, and ground straps.

HCP SYMBOL EXPLANATION EXAMPLE

FIGURE 1. Example of use of nuclear hardness-critical process HCP) symbol (reference 4.1.5.1, 4.1.5.1b, 4.1.5.2).

CAUTION

ESDS PARTS. A process or step concerning ESDS parts, components, or circuits is identified by the following symbol:



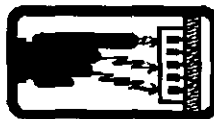
All paragraphs, procedures, and steps identified by the ESDS symbol must be followed as written (in accordance with DOD-STD-1686) to ensure ESDS parts are not damaged or degraded during handling/maintenance. Maintenance actions which could inadvertently degrade ESDS parts, but which are not directly related to handling/maintenance of ESDS parts, will not be annotated with the ESDS symbol, but will be preceded by a caution such as the following:

CAUTION

To prevent damaging or degrading ESDS parts, components, or circuits, authorized ESDS procedures must be strictly followed.

The symbol is placed between the paragraph number and title when the complete task is considered ESDS. ESDS procedures remain in effect for the entire procedure. (See example A.) When only certain subparagraphs, procedures, or steps within a task are ESDS, the symbol is placed before the first indented step or subparagraph. ESDS procedures are in effect from the point of the ESDS symbol insertion until the next higher level numbered paragraph or subparagraph appears. (See example B.) Follow the General Maintenance Instructions located in Appendix F for Cleaning and Installing Items to Prevent Damaging or Degrading ESDS Parts.

1.2



LRU REPAIR.

EXAMPLE A

a.



Power Supply Removal.

EXAMPLE B

FIGURE 2. Example of use of ESDS symbol (reference 4.1.6.1, 4.1.6.1a, 4.1.6.2).

TM 10-1670-274-23&P

CHAPTER 1

INTRODUCTION

SECTION I. GENERAL INFORMATION

1.1 SCOPE.

The scope of this manual is described in the following subparagraphs.

1.1.1 Type of Manual. This manual provides unit and intermediate direct support (DS) maintenance instructions for parachute, NSN 1670-00-883-8674. This is a 28-Foot Diameter Chest (Emergency) Parachute. Included in these instructions are procedures for packing and maintenance pertaining to the composition, inspection, repair, and replacement of individual components and assemblies. This manual also provides a Repair Parts and Special Tools List located at Appendix C.

1.1.2 Equipment Name. 28-Foot Diameter Chest (Emergency) Parachute.

1.1.3 Purpose of Equipment. The parachute is an emergency type designed to be activated manually, by means of a ripcord, by the parachutist after he (or she) has cleared the aircraft.

1.2 MAINTENANCE FORMS, RECORDS, AND REPORTS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System.

1.3 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your parachute needs improvement, let us know. Send us an EIR. You, the user, are the only one

who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to the address specified in DA PAM 738-750. We will send you a reply.

1.4 DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Destruction methods are described in the following subparagraphs.

1.4.1 General.

1.4.1.1 Objective. Methods of destruction used to inflict damage on parachutes should make it impossible to restore equipment to a usable condition in a combat zone by either repair or cannibalization.

1.4.1.2 Authority. Destruction of a parachute that is in imminent danger of capture by an enemy is a command decision that must be made by a battalion or higher commander or the equivalent.

1.4.1.3 Implementation Plan. All units which possess parachutes should have a plan for the implementation of destruction procedures.

1.4.1.4 Training. All personnel who use or perform such functions as rigging, packing, maintenance, or storage of parachutes should receive thorough training on destruction procedures. The destruction methods demonstrated during training should be simulated. Upon completion of training, all

1-1

FIGURE 3. Example of headers, footers, paragraph numbering, and text (sheet 1 of 3) (reference 4.2.1, 4.2.9, 4.2.10, 4.2.11, 5.1.7, 5.1.7.2, 5.5.2).

applicable personnel should be thoroughly familiar with parachute destruction methods and be capable of performing destruction without immediate reference to any publication.

1.4.2 Specific Methods. Specific methods of destroying Army parachutes to prevent enemy use shall be by mechanical means, fire, or use of natural surroundings.

1.4.2.1 Destruction by Mechanical Means. Demolish by using any sharp object (knife, shears, etc.) to cut, rip, tear, or slash fabric, lines, loops, straps, or tapes.

WARNING

Use extreme care when pouring gasoline or any other flammable material as a fire starter. Such materials can cause injury or death.

1.4.2.2 Destruction by Fire. Items that can be destroyed by fire shall be burned. However, mechanical destruction should be completed first,

whenever possible, before initiating destruction by fire. Loosely pile the entire parachute assembly. Burn, using gasoline, solvent, beeswax, oil, or any other flammable material as a fire starter.

1.4.2.3 Destruction by Use of Natural Surroundings. Accessible vital parts may be removed and scattered through dense foliage, buried in dirt or sand, or thrown into a lake, stream, or other body of water. Total submersion of equipment in a body of water will provide water damage as well as concealment. Salt water will inflict extensive damage to parachutes.

1.5 PREPARATION FOR STORAGE OR SHIPMENT.

To prepare the parachute for storage or shipment, refer to Chapter 2, Section VII, of this manual.

FIGURE 3. Example of headers, footers, paragraph numbering, and text (sheet 2 of 3) (reference 4.2.1, 4.2.9, 4.2.10, 4.2.11, 5.1.7, 5.1.7.2, 5.5.2).

1.1 PRIMARY PARAGRAPH TITLE.

(xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx)

1.1.1 First Subordinate Paragraph Title. (xxxx xxxx xxxx xxxx xxxx xxxx xxxx)

1.1.1.1 Second Subordinate Paragraph Title. (xxxx xxxx xxxx xxxx xxxx xxxx)

a. First procedural step. (xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx)

(1) First subordinate procedural step. (xxxx xxxx xxxx xxxx xxxx xxxx xxxx)

(a) Second subordinate procedural step. (xxxx xxxx xxxx xxxx xxxx xxxx xxxx)

1.2 NEXT PRIMARY PARAGRAPH TITLE.

1.2.1 Next Subordinate Paragraph Title.

FIGURE 3. Example of headers, footers, paragraph numbering, and text (sheet 3 of 3) (reference 4.2.1, 4.2.9, 4.2.10, 4.2.11, 5.1.7, 5.1.7.2, 5.5.2).

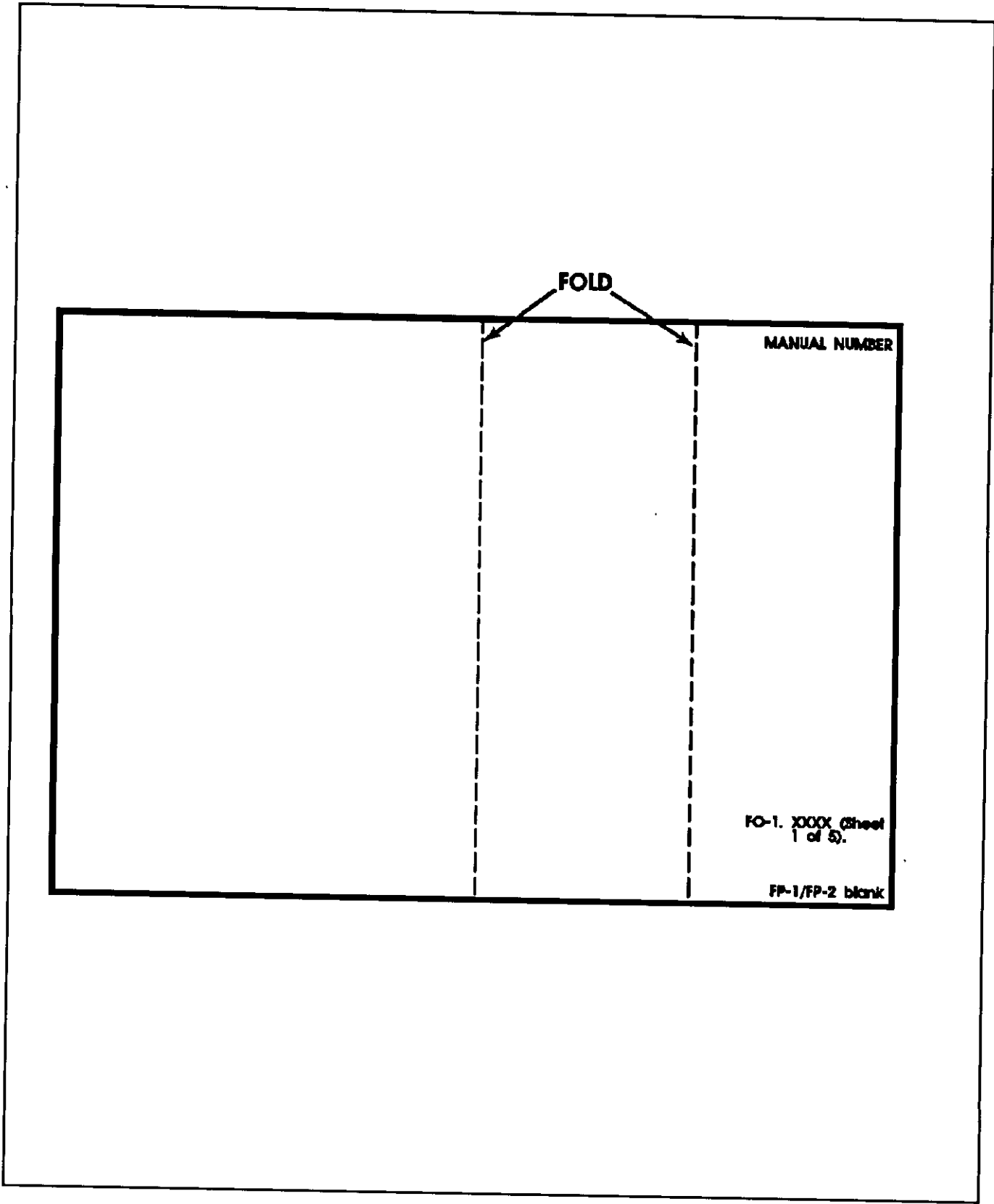


FIGURE 4. Example of foldout page (reference 4.2.2.4).

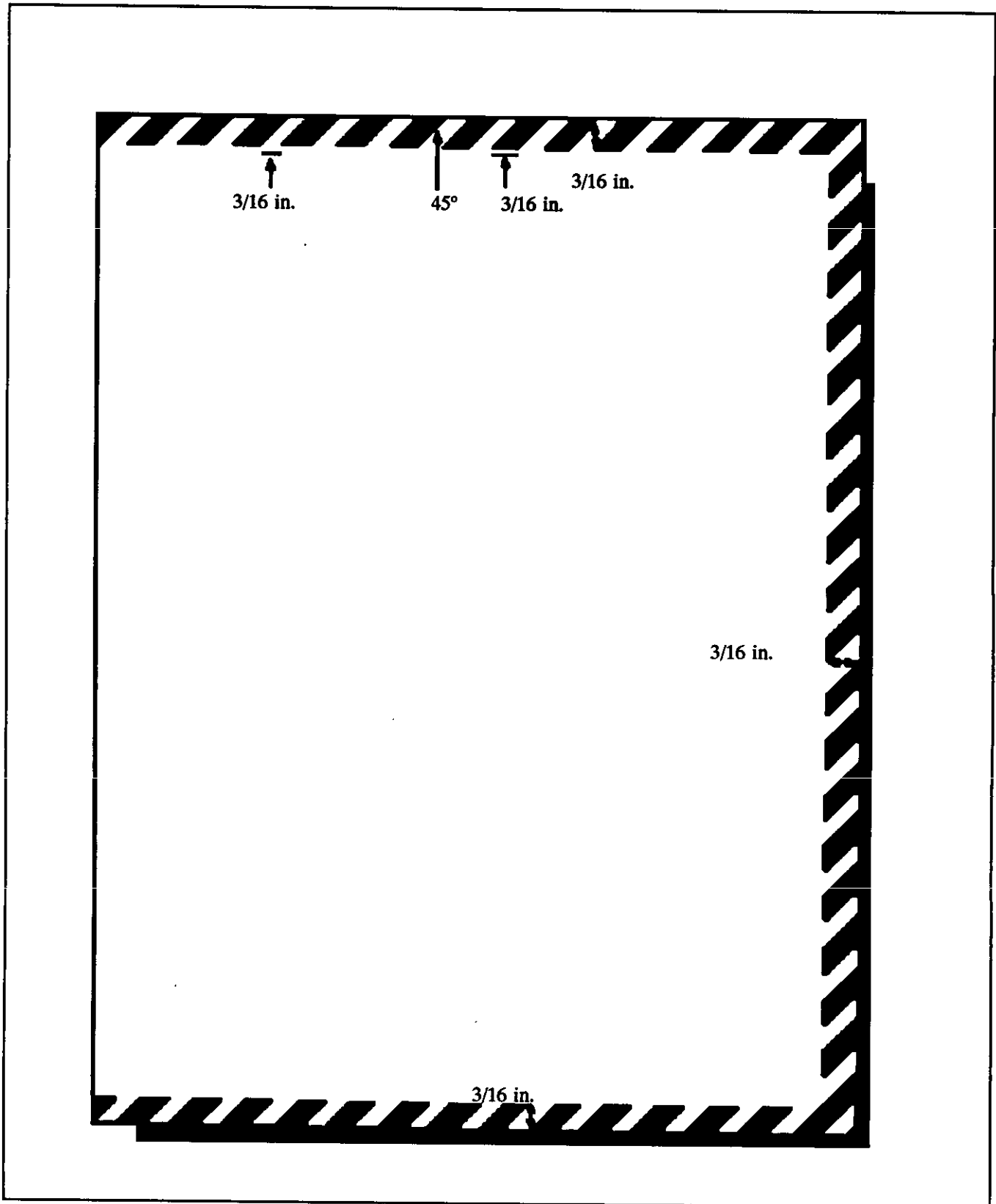


FIGURE 5. Example of emergency page markings (reference 4.2.4).

4.5 ACCUMULATOR CYLINDER DISASSEMBLY.

XXXX
XXXX
XXXX
XXXX XXXX

Legend for Figure 4-5

1. High line
2. Ram piston
3. Accumulator
4. Accumulator piston

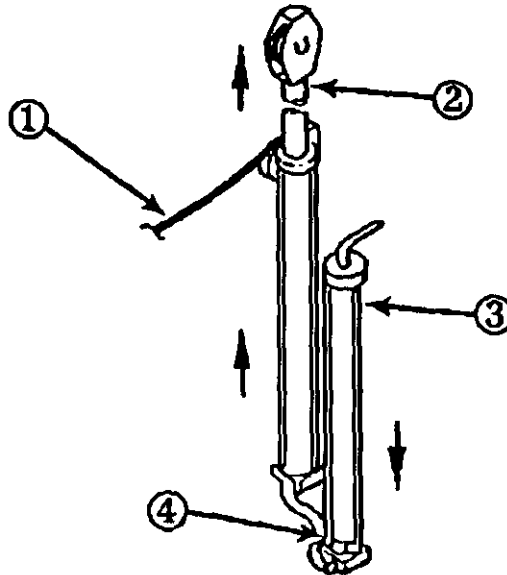


Figure 4-5. Accumulator Cylinder.

4.6 ACCUMULATOR CYLINDER ASSEMBLY.

XXXX
XXXX
XXXX
XXXX XXXX

FIGURE 6. Example of figure with legend (reference 4.2.5.1b, 4.2.5.2).

DMWR 9-1005-318-9

DEPOT MAINTENANCE WORK REQUIREMENT
FOR
GUN, AIR DEFENSE ARTILLERY, SELF-PROPELLED
20MM, M163A2
NSN 2350-01-169-2833 (EIC 3JL)
P/N 9360800
AND
GUN, AIR DEFENSE ARTILLERY, TOWED:
20MM, M167A2
NSN 1005-01-177-9237 (EIC 3JO)
P/N 9378463
VOLUME 9 of 9
DISTRIBUTION BOX

This publication is not available through U.S. Army Publications Centers. It must be obtained from (name and address of proponent).

=====

FIGURE 8. Example of front cover - subtitle, volume numbers and titles, availability statement (reference 4.2.8, 5.3.13.1.3, 5.3.13.3).

MANUAL NUMBER

INDEX

<u>Subject</u>	<u>Paragraph</u>	<u>Page</u>
A		
Accessory Section		
Installation.....	8.24	8-50
Removal.....	4.54	4-95
Actuating Pilot Valve Leakage Check.....	5.5	5-10
Actuator, Compressor Bleed Valve		
Assembly.....	5.111	5-150
Cleaning.....	5.108	5-148
Disassembly.....	5.107	5-147
Inspection.....	5.109	5-149
Repair.....	5.110	5-149
Adapter, Compressor Repair.....	6.135	6-201
Afterburner		
Description.....	2.29	2-41
Installation.....	8.110	8-135
Performer Limits.....	9.8	9-9
Removal.....	4.141	4-301
Air System.....	2.74	2-89
Airseal Installation.....	8.9	8-11
Anti-icing Air System Description.....	2.17	2-34
B		
Baffle and Spacer.....	6.29	6-69
Baffle Assembly.....	6.28	6-64
Bearings, Anti-friction		
Balance.....	6.15	6-20
Cleaning.....	6.16	6-20
Bleed Control Limit Curve.....	6.11	6-20
Breather Pressurizing Valve		
Disassembly.....	3.22	3-25
Installation.....	3.105	3-178
C		
Carbon Seals		
Cleaning.....	3.14	3-19
Inspection.....	3.60	3-88
Combustion Chambers		
Igniters.....	3.128	3-109

Index-1

FIGURE 9. Example of index (reference 4.2.16).

TM 10-1670-274-20

TECHNICAL MANUAL

UNIT MAINTENANCE

PARACHUTE, PERSONNEL TYPE:
28-FOOT DIAMETER, CHEST
(EMERGENCY)
NSN 1670-00-883-8674 (EIC 4JC)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

DISTRIBUTION STATEMENT A - XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX
XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX

HEADQUARTERS, DEPARTMENT OF THE ARMY

DATE

CHAPTER 1

INTRODUCTION

SECTION I. GENERAL INFORMATION





1. SCOPE.

XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

FIGURE 10. Example of title block page and text for a brief TM (reference 4.2.17b, 5.5.3.3).

HEADERS EXAMPLES:

Any one set of the following may be used.

NOTE		
NOTE	<u>CAUTION</u>	<u>WARNING</u>
NOTE	CAUTION	
NOTE	<u>CAUTION</u>	

HEADERS/TEXT EXAMPLES:

WARNING

The following step applies dangerous potentials up to 7,000 volts dc to exposed terminals and wiring in the oscilloscope chassis. Exercise extreme caution when working inside this chassis throughout the rest of this procedure or death to personnel could result.

CAUTION

All aluminum welding fluxes are highly corrosive. Exercise care to prevent the flux from entering the cooler core. Complete removal of the flux residues is essential to prevent damage to equipment.

NOTE

Be sure to shut off the telephone system when the radar set is not operating. It usually obtains power from a separate source.

(Above is for copy prepared by office composing equipment or automated equipment. Underlining and boxes may be omitted for equipment without such a capability.)

FIGURE 11. Examples of warnings, cautions, and notes (reference 5.3.8).

WARNING SUMMARY

This publication describes physical and chemical processes which may require the use of chemicals, solvents, paints, or other commercially available material. The user of this publication should obtain the material safety data sheets (Occupational Safety and Health Act (OSHA) Form 20 or equivalent) from the manufacturer or suppliers of materials to be used. The user must become completely familiar with the manufacturer/supplier information and adhere to the procedures, recommendations, warnings, and cautions of the manufacturer/supplier for the safe use, handling, storage, and disposal of these materials. The following are general safety precautions and instructions that people must understand and apply during many phases of operation and maintenance to ensure personal safety and health and the protection of DOD property. Portions of this may be repeated elsewhere in this publication for emphasis.

WARNING AND CAUTION STATEMENTS

WARNING and CAUTION statements have been strategically placed throughout this text prior to operating or maintenance procedures, practices, or conditions considered essential to the protection of personnel (WARNING) or equipment and property (CAUTION). A WARNING or CAUTION will apply each time the related step is

repeated. Prior to starting any task, the WARNINGS or CAUTIONS included in the text for that task must be reviewed and understood. Refer to the materials list at the beginning of the appropriate manual section for materials used during maintenance of this equipment. This warning summary contains the WARNINGS and CAUTIONS included in the manual. The detailed warnings for hazardous materials only are listed separately in the warning summary as the "Hazardous Materials Warnings" section.

HAZARDOUS MATERIALS WARNINGS

Warnings for hazardous material in this manual are designed to warn personnel of hazards associated with such items when they come in contact with them during actual use. Additional information related to hazardous material is provided in (insert applicable references).

For each hazardous material used, a material safety data sheet (MSDS) is required to be provided and available for review by users. Consult your local safety and health staff concerning any questions on hazardous chemicals, MSDSs, personal protective equipment requirements, and appropriate handling and emergency procedures.

FIGURE 12. Example of warning summary (with hazardous materials warnings) (sheet 1 of 3) (reference 5.3.8.1.1, 5.3.8.1.2, 5.4.1.2c).

EXPLANATION OF SINGLE HAZARD SYMBOLS



The abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.



The symbol of drops of a liquid onto a hand shows that the material will cause burns or irritation of human skin or tissue.



The rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.



The symbol of a person wearing goggles shows that the material will injure the eyes.



The symbol of a flame shows that the material can ignite and burn personnel.



The symbol of a skull and crossbones shows that a material is poisonous or is a danger to life.



The symbol of three circular wedges shows that the material emits radioactive energy and can injure human tissue or organs.



The symbol of a human figure in a cloud shows that vapors of a material present a danger to life or health.

This Hazardous Materials Warnings section gives the complete warnings for hazardous material used in this manual. To help the user understand the potential hazards of these materials, a more detailed warning for these materials and an explanation of the hazard symbols follow.

FIGURE 12. Example of warning summary (with hazardous materials warnings) (sheet 2 of 3) (reference 5.3.8.1.1, 5.3.8.1.2, 5.4.1.2c).

HAZARDOUS MATERIALS WARNINGS

Material/Icon

Warning

CHROMIC ACID, 0-C-303



Chromic acid, 0-C-303, has toxic fumes, can burn skin and eyes, and is a strong oxidizing agent. It may ignite combustible material or organic substances. When mixing with water, always add acid to water. Protection: chemical splashproof goggles, acidproof gloves, face shield, apron and footwear, and forced ventilation (or respirator). Keep acid off skin, eyes, and clothes. Wash exposed skin areas thoroughly.

DRY CLEANING SOLVENT



Dry cleaning solvent is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

**INSULATING COMPOUND,
MIL-I-46058, TYPE UR**



Insulating compound is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

**ISOPROPYL ALCOHOL, TT-1735,
GRADE B (FSCM 81348)**



Isopropyl alcohol is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

FIGURE 12. Example of warning summary (with hazardous materials warnings) (sheet 3 of 3) (reference 5.3.8.1.1, 5.3.8.1.2, 5.4.1.2c).

- f. Insert plug connector kits wiring (7 and 8) and contacts/wiring (9, 10, and 11) through electrical cable clamp kits (5 or 6) and appropriate capsule cable entry tube. Maintain wire twists.



ISOPROPYL ALCOHOL

- g. Isopropyl alcohol (item 5, Appendix D) may be used as lubricant during insertion and removal of contacts. Apply isopropyl alcohol by brushing on capsule insert or by dipping contact or tool.
- h. Insert contacts into capsule insert by hand, if possible, or use applicable insertion tool.
- i. Pull on wire to make sure contacts are locked in place.

FIGURE 13. Example of hazardous materials warnings used in text (reference 5.3.8.1.2b, 5.3.8.1.3).

SECURITY CLASSIFICATION TM NUMBER

TECHNICAL MANUAL

TYPE OF PUBLICATION

MAINTENANCE LEVELS

NOMENCLATURE OF EQUIPMENT

TYPE, MODEL, PART NUMBER

NATIONAL STOCK NUMBER (EIC)

OR

SUBJECT

SUBTITLE

ILLUSTRATION

Availability Statement
Supersedure Notice
Disclosure Notice
Distribution Statement
Export Control Notice
Destruction Notice

SERVICE NOMENCLATURE

CHANGE - DATE

TM DATE

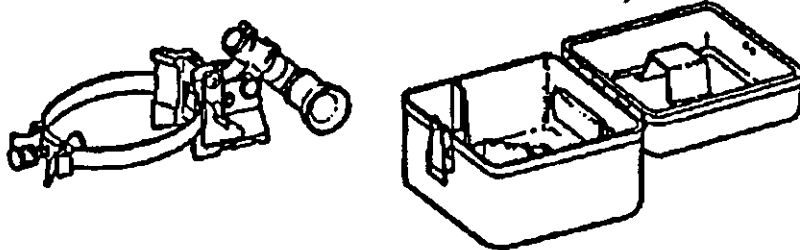
SECURITY CLASSIFICATION

FIGURE 14. Example of front cover format (including security classification) (reference 5.3.13, 5.3.13.1, 5.3.13.5, 5.7).

TM 9-1240-278-24&P

TECHNICAL MANUAL

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR



OPTICAL BORESIGHT, M45, W/E NSN 1240-00-690-8811 (EIC B20)

SUPERSEDURE NOTICE - This manual supersedes TM 9-1240-278-24&P dated 8 December 1985.

DISTRIBUTION STATEMENT X - Distribution authorized to U.S. Government agencies and private individuals or enterprises to obtain export-controlled technical data in accordance with regulations implementing 10 USC 140c. This determination was made on 22 September 1987. Other requests will be referred to HQ, AMCCOM, ATTN: AMSMC-MAW-SL, Rock Island, IL 61201.

WARNING - This document contains export-controlled technical data whose export is restricted by the Arms Export Control Act (Title 22, USC, Sec 2751 et seq) or Executive Order 12470. Violators of these export laws are subject to severe criminal penalties.

DESTRUCTION NOTICE - Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

HEADQUARTERS, DEPARTMENT OF THE ARMY

10 JULY 1988

FIGURE 15. Example of unclassified front cover (reference 5.3.13.1, 5.3.13.1.1, 5.3.13.1.2, 5.3.13.2, 5.3.13.4, 5.3.13.6 - 5.3.13.10, 5.5.2).

TECHNICAL MANUAL
UNIT MAINTENANCE INSTRUCTIONS
GROUND GUIDANCE AND CONTROL
LIQUID COOLING SYSTEM
NSN 5180-00-160-8177 (EIC J15)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to:
Commander, U.S. Army Armament, Munitions and Chemical Command,
ATTN: AMSMC-MAY-TD), Picatinny Arsenal, NJ 07806-5000. A reply will be furnished to you.

SUPERSEDURE NOTICE - This manual supersedes TM 9-1095-208-20, dated 18 August 1972.

DISTRIBUTION STATEMENT A - Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

12 DEC 1989

TABLE OF CONTENTS

		<u>Page</u>
CHAPTER 1	INTRODUCTION.....	1-1
SECTION I	GENERAL INFORMATION.....	1-1
1.1	SCOPE.....	1-1

FIGURE 16. Example of title block page, Reporting Errors and Recommending Improvements statement (reference 5.4.1.1, 5.4.1.1.1).

MANUAL NUMBER

WARNING SUMMARY

The following are general safety precautions that are not related to any specific procedures and, therefore, do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must at all times observe all safety regulations. Do not replace components or make adjustments inside the equipment with the high voltage supply turned on. Under certain conditions, dangerous potentials may exist when the power control is in the off position due to charges retained by capacitors. To avoid casualties, always remove power, and discharge and ground a circuit before touching it.

DO NOT SERVICE OR ADJUST ALONE

Under no circumstance should any person reach into or enter the enclosure for the purpose of

servicing or adjusting the equipment except in the presence of someone who is capable of rendering aid.

RESUSCITATION

Personnel working with or near high voltages should be familiar with modern methods of resuscitation. Such information may be obtained from the Bureau of Medicine and Surgery.

The following warning appears in the text to this volume and is repeated here for emphasis:

WARNING

High voltages capable of causing death are used in this equipment. Use extreme caution when servicing either the power supplies or their load components. (Refer to page 6-631.)

a

FIGURE 17. Example of general safety precautions in a warning summary (reference 5.4.1.2c).

WARNING

RADIATION HAZARD

This equipment contains the following radioactive tubes (List applicable tubes and equipment locations.). Radiation may be present at unsealed or broken waveguide elements.

WARNING

DANGEROUS CHEMICALS

are used in this equipment.

DEATH

or severe burns may result if personnel fail to observe safety precautions.

WARNING

HIGH VOLTAGE

is used in the operation of this equipment.

DEATH ON CONTACT

may result if personnel fail to observe safety precautions. Learn the areas containing high voltage in each piece of equipment. Be careful not to contact high voltage connections when installing or operating this equipment. Before working inside the equipment, turn power off and ground points of high potential before touching them.

WARNING

GASES OR AIR UNDER PRESSURE

3,000 PSI AIR PRESSURE

is used in the operation of this equipment.

DEATH

or severe injury may result if personnel fail to observe safety precautions.


FIGURE 18. Example of general subject data warnings in a warning summary (reference 5.4.1.2c).

TABLE OF CONTENTS

	<u>Page</u>
WARNING SUMMARY.....	a
HOW TO USE THIS MANUAL	iii
CHAPTER 1 INTRODUCTION.....	1-1
SECTION I GENERAL INFORMATION.....	1-1
1.1 Scope.....	1-1
1.2 Maintenance Forms, Records, and Reports.....	1-2
1.3 Reporting Equipment Improvement Recommendations (EIR).....	1-2
1.4 Corrosion Prevention and Control (CPC).....	1-3
1.5 Destruction of Army Materiel to Prevent Enemy Use.....	1-4
1.6 Preparation for Storage or Shipment.....	1-4
1.7 Nomenclature Cross-reference List.....	1-4
SECTION II EQUIPMENT DESCRIPTION.....	1-9

FIGURE 19. Example of Table of Contents format (reference 5.4.1.4).

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH THIS PUBLICATION?

THEN — JOT DOWN THE INFO ON THIS FORM...TEAR OUT THIS PAGE...FOLD IT...AND DROP IT IN THE MAIL!

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS):
 CDR, 1st Br. 88th ADA
 ATTN: SP4 J. Brown
 Key West, FL 33040

DATE SENT:
 18 Jun 79

PUBLICATION NUMBER: TM 9-1430-550-04-1 **PUBLICATION DATE:** 7 Sep 72 **PUBLICATION TITLE:** Unit of Radar Set AN/MPO-50 Tested at the HFC

BE EXACT... PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA. GRAPH	FIGURE NO	TABLE NO	
9-19		9-5		<p>"B" Ready Relay K11 is shown with two #8 contacts. That contact which is wired to pin 8 of relay K16 should be changed to contact #10.</p> <p>Reeds: Multimeter B indicates 800 K ohms to 9000 K ohms. Change to read: Multimeter B indicates 800 K ohms minimum. Reason: Circuit being checked could measure infinity. Multimeter can read above 9000 K ohms and will be correct.</p>
21-2	step 1C	21-2		

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER: SP4 J. T. Brown, Jr. **SIGN HERE:** *SP4 James Brown, Jr.*

DA FORM 2028-2 PREVIOUS EDITIONS ARE OBSOLETE. P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

FIGURE 20. Example of filled in sample DA Form 2028-2 (reference 5.4.1.7).

MANUAL NUMBER

CHANGE
NO. 1

HEADQUARTERS, DEPARTMENT OF THE ARMY
WASHINGTON, DC, 31 AUG 1988

TECHNICAL MANUAL

OPERATOR'S, UNIT, AND
GENERAL SUPPORT MAINTENANCE MANUAL

TEST SET
RADAR AN/TPM-22
NSN 4931-00-707-1229 (EIC D42)

DISTRIBUTION STATEMENT A - Approved for public release; distribution is unlimited.

TM X-XXX-XXXX-XX, 5 June 1987, is changed as follows:

1. Remove old pages and insert new pages as indicated below.
2. File this sheet in the front of the manual for reference.
3. This change is a result of new preventive maintenance checks and services procedures and new expendable/durable supplies and materials.
4. New or changed text is indicated by a vertical bar in the outer margin of the page.
5. Added illustrations are indicated by a vertical bar adjacent to the figure number. Revised illustrations are indicated by a miniature pointing hand adjacent to the changed area and a vertical bar adjacent to the figure number.

Remove Pages

5-13 through 5-16
6-1 and 6-2
6-23 through 6-26

6-27 through 6-38
6-43 through 6-46

6-51 through 6-56
6-75 through 6-80

Insert Pages

5-13 through 5-16
6-1 and 6-2
6-23 through 6-26, and
6-26.1/6.26.2 blank
6-27 through 6-38
6-43 through 6-44.3/
6-44.4 blank through 6-46
6-51 through 6-56
6-75 through 6-80,
6-80.1 and 6-80.2

Remove Pages

6-81 through 6-88
6-95 and 6-96
6-151 and 6-152
6-167 and 6-168
6-177 and 6-178
6-183 through 6-192
6-195 through 6-198
6-213 through 6-216
6-219 through 6-244
B-3 and B-4

Insert Pages

6-81 through 6-88
6-95 and 6-96
6-151 and 6-152
6-167 and 6-168
6-177 and 6-178
6-183 through 6-192
6-195 through 6-198
6-213 through 6-216
6-219 through 6-244
B-3 and B-4

Change 1

FIGURE 21. Example of change sheet (reference 5.6.1.1, 5.6.1.5).

MANUAL NUMBER

2.1 TITLE.

2.1.1 Title.

**PARAGRAPHS
 ADDED**
 Add decimal
 to paragraph
 number.

2.1.2 Title.

2.2 DELETED.

**PARAGRAPHS
 DELETED**
 Retain paragraph
 number; add
 DELETED.

Figure 2-1. DELETED.

**FIGURE
 DELETED**
 Use area except
 for 1/4" (18 pt
 leading) above
 and below
 deletion notation.

FIGURE ADDED
 Add decimal to
 figure number.



Figure 2-1.1. M45A1 Boresight.

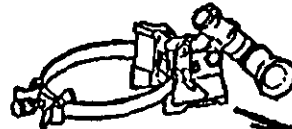


Figure 2-2. M45 Boresight.

**FIGURE
 REVISED**
 Retain same
 figure number.

2.3 TITLE.

2.4 TITLE.

CHANGE NUMBER
 Appears on all
 change pages.

Change 4 → 2-1/2-2 blank
PAGE NUMBERING
 Retain number of original page and blank page where used.
 Retain as a blank page a completely deleted page. Two
 deleted pages that back each other shall be omitted and
 a notation on preceding page at bottom or on succeeding
 page at top, "Page... deleted." (To be placed above or
 below security classification, if any.)

**CHANGE
 SYMBOLS**
 Use vertical 6-pt
 line to show
 text changes.

FIGURE 22. Example of requirements for change pages (reference 5.6.1.3, 5.6.1.4).

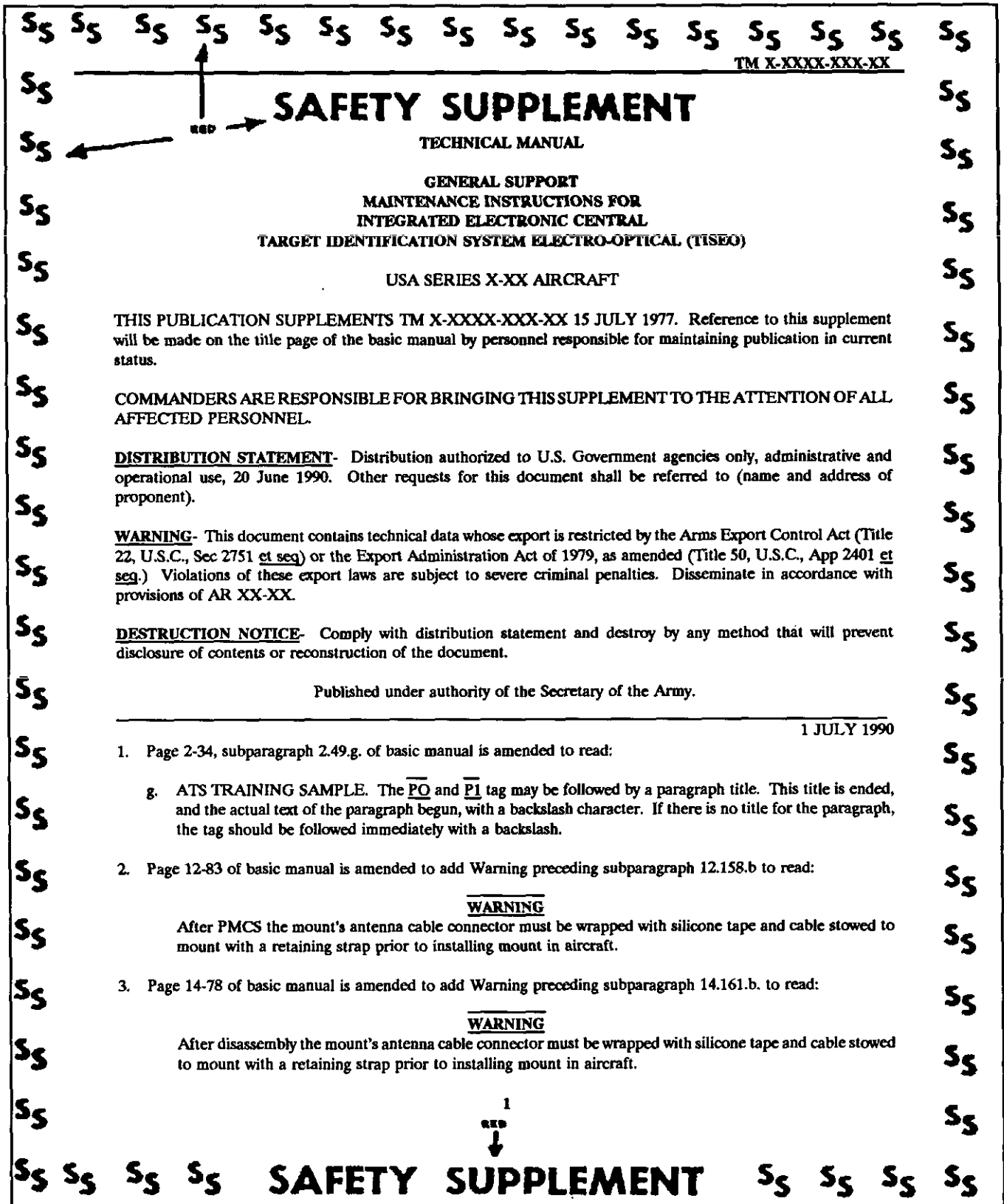


FIGURE 23. Example of safety supplement title page (reference 5.6.3, 5.6.3.2b).

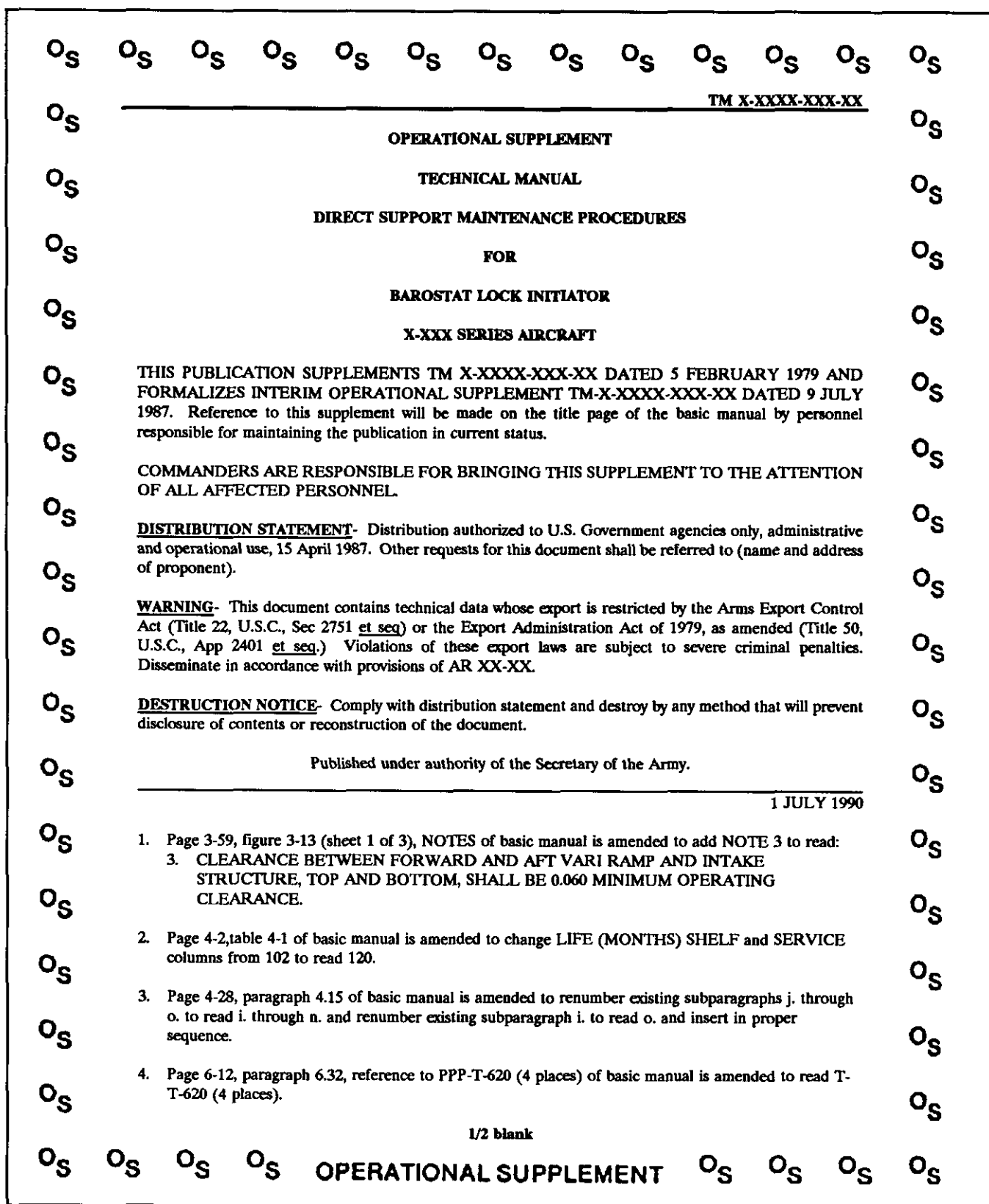


FIGURE 24. Example of operational supplement title page (reference 5.6.3, 5.6.3.3).

APPENDIX A

SINGLE HAZARD ICONS PRESENTATION

10. SCOPE

10.1 Scope. This appendix lists single hazard icons which may be used in technical manuals warnings either singly or in combination. This list is intended to include all approved single hazard icons; additional icons and definitions will be added, as applicable, when this document is amended or revised. This appendix is a mandatory part of the standard. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS.

This section is not applicable to this appendix.

30. DEFINITIONS

30.1 Icon. Pictorial representation; visual image to give immediate recognition of a hazard.

40. GENERAL REQUIREMENTS

40.1 Usage of icons. Icons shall be used with signal word(s). The signal word(s) shall be placed to the right of or below the icon(s) as shown in figure A-1. The icon(s) shall precede applicable text in the technical manual.

40.2 Development of icons.

- a. Icons shall be enclosed in a square or rectangular box. The signal word(s) for single icons shall appear outside the box at the upper right-hand side. Type size for signal word(s) shall be no smaller than 10 point; 12 point bold face type is recommended. (See figure A-1 for presentation format for icon usage.)
- b. As specified by the contracting activity, icons shall or shall not be prepared for electronic presentation (digitizing) per Government-provided requirements.

50. DETAILED REQUIREMENTS

50.1 Icons and definitions. The following icons shall be used in warnings for all technical manuals governed by this standard when applicable. Unless requirement is specifically excluded by the contracting activity, the signal words and definitions shall be used as listed herein.

APPENDIX A

ICON

SIGNAL WORD - DEFINITION

NOTE: Signal word appears in all capital letters below, preceding the definition.

1



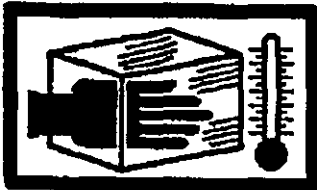
BIOLOGICAL - abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.

2



CHEMICAL - drops of liquid on hand shows that the material will cause burns or irritation to human skin or tissue.

3



CRYOGENIC - hand in a block of ice shows that the material is extremely cold and can injure human skin or tissue.

4



EAR PROTECTION - headphones over ears shows that noise level will harm ears.

APPENDIX A

5



ELECTRICAL - electrical wire to arm with electricity symbol running through human body shows that shock hazard is present.

6



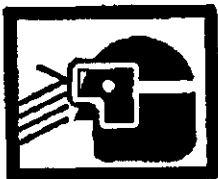
ELECTRICAL - electrical wire to hand with electricity symbol running through hand shows that shock hazard is present.

7



EXPLOSION - rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition or high pressure.

8



EYE PROTECTION - person with goggles shows that the material will injure the eyes.

9



FALLING PARTS - arrow bouncing off human shoulder and head shows that falling parts present a danger to life or limb.

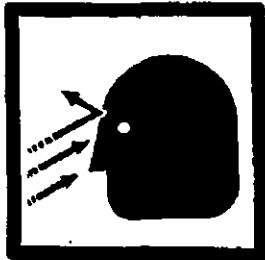
APPENDIX A

10



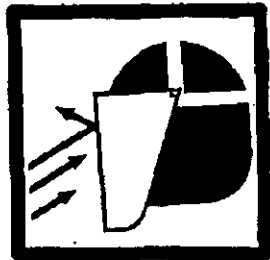
FIRE - flame shows that a material may ignite and cause burns.

11



FLYING PARTICLES - arrows bouncing off face shows that particles flying through the air will harm face.

12



FLYING PARTICLES - arrows bouncing off face with face shield shows that particles flying through the air will harm face.

13



HEAVY PARTS - hand with heavy object on top shows that heavy parts can crush and harm.

14



HEAVY PARTS - foot with heavy object on top shows that heavy parts can crush and harm.

APPENDIX A

15



HEAVY PARTS - heavy object on human figure shows that heavy parts present a danger to life or limb.

16



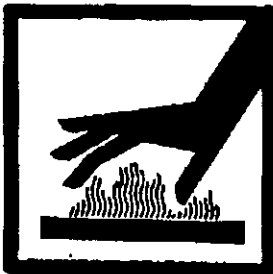
HEAVY PARTS - heavy object pinning human figure against wall shows that heavy, moving parts present a danger to life or limb.

17



HELMET PROTECTION - arrow bouncing off head with helmet shows that falling parts present a danger.

18



HOT AREA - hand over object radiating heat shows that part is hot and can burn.

19



LASER LIGHT - laser light hazard symbol indicates extreme danger for eyes from laser beams and reflections.

APPENDIX A

20



MOVING PARTS - human figure with an arm caught between gears shows that the moving parts of the equipment present a danger to life or limb.

21



MOVING PARTS - hand with fingers caught between gears shows that the moving parts of the equipment present a danger to life or limb.

22



MOVING PARTS - hand with fingers caught between rollers shows that the moving parts of the equipment present a danger to life or limb.

23



POISON - skull and crossbones shows that a material is poisonous or is a danger to life.

24



RADIATION - three circular wedges shows that the material emits radioactive energy and can injure human tissue.

APPENDIX A

25



SHARP OBJECT - pointed object in hand shows that sharp object presents a danger to limb.

26



SHARP OBJECT - pointed object in hand shows that sharp object presents a danger to limb.

27



SHARP OBJECT - pointed object in foot shows that sharp object presents a danger to limb.

28



SLICK FLOOR - wavy line on floor with legs prone shows that slick floor presents a danger for falling.

29



VAPOR - human figure in a cloud shows that material vapors present a danger to life or health.

APPENDIX A

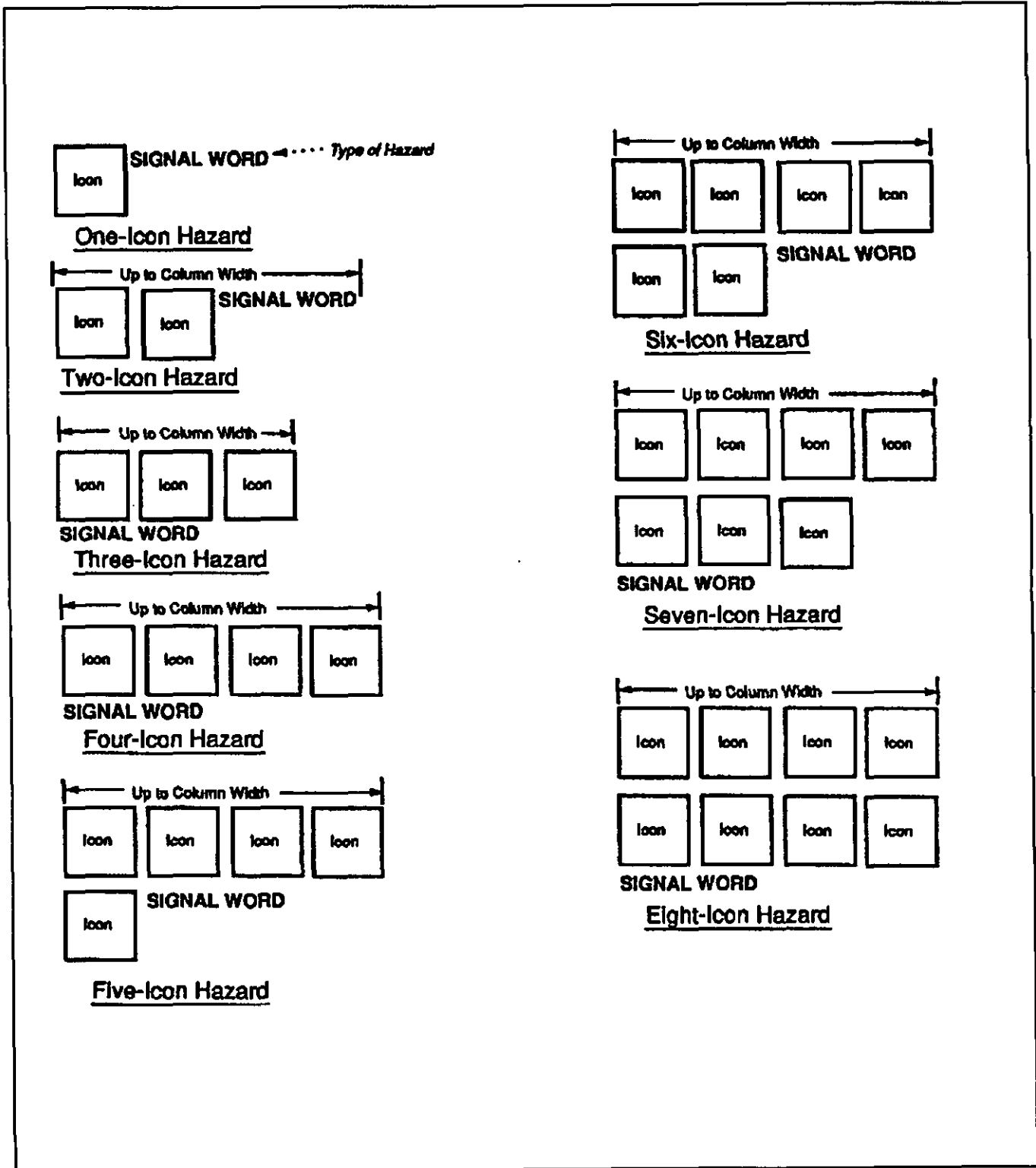


FIGURE A-1. Multiple icon usage and presentation format (reference Appendix A, 40.1, 40.2a).

INDEX

	<u>PARAGRAPH</u>	<u>PAGE</u>
Abbreviations and acronyms	5.3.1	24
Acquisition requirements	6.4	42
Acronyms used in this standard	3.1	5
Advertising	4.1.1	8
Appendixes	4.2.14	16
Appendixes	5.5.3.7	36
Applicability	1.3	1
APPLICABLE DOCUMENTS	2.	2
Authentication page	5.4.1.8	34
Automatic electronic test and checkout terminology	5.3.4	25
Availability statement	5.3.13.3	29
Back cover	5.4.1.9	34
Back matter	5.4.1.6	34
Blank page numbers	5.5.3.5	35
Blank pages	4.2.3	11
Boxhead title	3.2	5
Brief manual	5.5.3.3	35
Brief TMs	4.2.17	16
Caution	3.3	5
Change	3.4	6
Change designator	5.1.7.2.1	20
Change designator	5.6.1.3	38
Change sheet	5.4.1.3	32
Change sheet	5.6.1.5	39
Change symbols for text and tables	5.6.1.4	38
Changes	5.6.1	37
Changes, revisions, and supplements	5.6	37
Chapters	4.2.9	14
Clarity and language	5.2.1	20
Classified supplements	5.6.3.1	40
Contracting activity	3.5	6
Copy freeze date	3.6	6
Copyright/copyright credit line	4.1.2	8
DEFINITIONS	3.	5
Deleted pages	5.5.3.6	36
Deleted paragraphs, steps, figures, items, and tables	5.6.1.2	37
Destruction notice	5.3.13.8	30
DETAILED REQUIREMENTS	5.	18
Disclosure notice	5.3.13.5	29
Distribution statement	5.3.13.6	29
Electrostatic Discharge Sensitive (ESDS) parts	4.1.6	9
Emergency page markings	4.2.4	11
Energy efficiency requirements	5.3.10	26
Environmental protection	5.3.11	27
Equipment names and nomenclature	5.2.4	23
ESDS symbol	4.1.6.1	9
ESDS symbol explanation	4.1.6.2	10
Export control notice	5.3.13.7	30
Figure and table numbering and titles	4.2.5.1	12
Figures and tables	4.2.5	12
Foldout location	4.2.2.3	11

INDEX

	<u>PARAGRAPH</u>	<u>PAGE</u>
Foldout numbering and title	4.2.2.4	11
Foldout page sizes	4.2.2.2	10
Foldout pages and multisheet illustrations	4.2.2	10
Foldout preparation and multisheet illustration limitations	4.2.2.1	10
Footer	3.7	6
Footers	5.1.7.2	20
Footnotes to tables	4.2.5.5	13
Footnotes to text	5.1.7.2.3	20
For Army COMSEC manuals use	5.3.14	30
Front and back matter	5.4	30
Front cover	5.3.13	27
Front cover and title block page	5.4.1.1	30
Front cover equipment illustration	5.3.13.2	29
Front matter	5.4.1	30
Front matter	5.5.3.2	35
General organization, presentation, and page sizes	5.1	18
GENERAL REQUIREMENTS	4.	8
General style and format	4.1	8
Glossaries	4.2.15	16
Glossary pages	5.5.3.8	36
Government documents	2.1	2
Hardness-critical process (HCP)	3.8	6
Hazardous materials warnings and icons	5.3.8.1	25
Hazardous materials warnings format	5.3.8.1.2	26
HCP symbol explanation	4.1.5.2	9
Header	3.9	6
Headers	5.1.7.1	19
Headers and footers	5.1.7	19
Headers identification	4.2.1	10
Health hazards	5.3.9	26
How To Use This Manual information	5.4.1.5	33
Icon	3.10	6
Icons	5.3.8.1.1	26
Illustration identification numbers	4.2.6	14
Illustration legends	4.2.5.2	12
Incorporation of supplements into manuals	5.6.3.5	41
Index	4.2.16	16
Index number changes	5.5.5	37
Index numbers and letters	3.11	6
Index pages	5.5.3.9	36
Intended use	6.1	42
International standardization agreements	5.4.1.5.1	33
Issue of DODISS	6.2	42
Legend	3.12	6
Major divisions	4.2.7	14
Margin data	5.1.6	19
Marginal copy	3.13	6
Metric symbols	5.3.2	24
Military terms	5.3.3	25
Neutral terms	5.2.2	21
Nomenclature deviation	5.2.5	24

INDEX

	<u>PARAGRAPH</u>	<u>PAGE</u>
Non-Government publications	2.2	4
Note	3.14	6
NOTES	6.	42
Nuclear hardness	4.1.5	8
Nuclear hardness symbol	4.1.5.1	8
Numbering	5.5	34
Numbering and dating changes	5.6.1.1	37
Numbering for pages, primary paragraphs, tables, and figures	5.5.3.4	35
Numbering of added material	5.5.4	36
Operational supplements (OS)	5.6.3.3	41
Order of precedence	2.3	4
Other Government documents and publications	2.1.2	3
Other TM page sizes	5.1.4	19
Packaging and preparation for delivery	5.9	41
Page numbers	5.5.3.1	35
Pagination	5.5.3	35
Paragraph titles	4.2.11.1	15
Paragraphs	4.2.11	14
Paragraphs in Joint Service TMs	4.2.13	15
Presentation	5.1.2	18
Primary paragraphs	4.2.11.2	15
Prime title	5.3.13.1.2	28
Procedural steps	4.2.12	15
Proprietary names	5.3.12	27
Purpose	1.2	1
Quality assurance	5.8	41
Readability/level and details of coverage	5.3	24
Referencing	5.2.3	21
Renumbering and removal	5.6.2.1	39
Reporting errors and recommending improvements DA Form 2028-2	5.4.1.7	34
Reporting errors and recommending improvements statement	5.4.1.1.1	31
Revision	3.15	6
Revisions	5.6.2	39
Routine supplements	5.6.3.4	41
Safety supplement (SS)	5.6.3.2	40
Scope	1.1	1
SCOPE	1.	1
Sections	4.2.10	14
Security classification	5.1.7.1.1	19
Security classification	5.1.7.2.2	20
Security classification	5.7	41
Selective application and tailoring	1.4	1
Service nomenclature	5.3.13.9	30
Source data	4.1.3	8
Specifications and standards	2.1.1	2
Standard TM page size	5.1.3	18
Subject term (key word) listing	6.6	43
Subordinate paragraphs	4.2.11.3	15
Subtitle	5.3.13.1.3	28

INDEX

	<u>PARAGRAPH</u>	<u>PAGE</u>
Supersedure notice	5.3.13.4	29
Supersession data	6.5	43
Supplement	3.16	6
Supplements	5.6.3	40
Table and figure locations	4.2.5.3	13
Table format	4.2.5.4	13
Table of Contents	5.4.1.4	32
Tables, charts, and graphs	5.3.6	25
Tabular material	5.3.7	25
Tailoring guidance	6.3	42
Technical manuals (TMs)	3.17	7
Text format	4.2	10
Text preparation details	5.2	20
TM date	5.3.13.10	30
TM Final Reproducible Copy (FRC)	4.1.7	10
TM number assignment	5.5.1	34
TM number location	5.5.2	34
TM organization	5.1.1	18
TM title and number	5.3.13.1	28
Type of TM and maintenance levels	5.3.13.1.1	28
Use of color	4.1.4	8
Use of hazardous materials warnings	5.3.8.1.3	26
Use of "shall," "should," "may," and "will"	5.3.5	25
Volume size	5.1.5	19
Volumes	4.2.8	14
Warning	3.18	7
Warning summary (including first aid data)	5.4.1.2	31
Warnings, cautions, and notes	5.3.8	25

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Army - TM

(PROJECT TMSS 0276-1)

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